The Orchadian

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Official Journal of the Australasian Native Orchid Society

Royal Botanic Gardens
Melbourne
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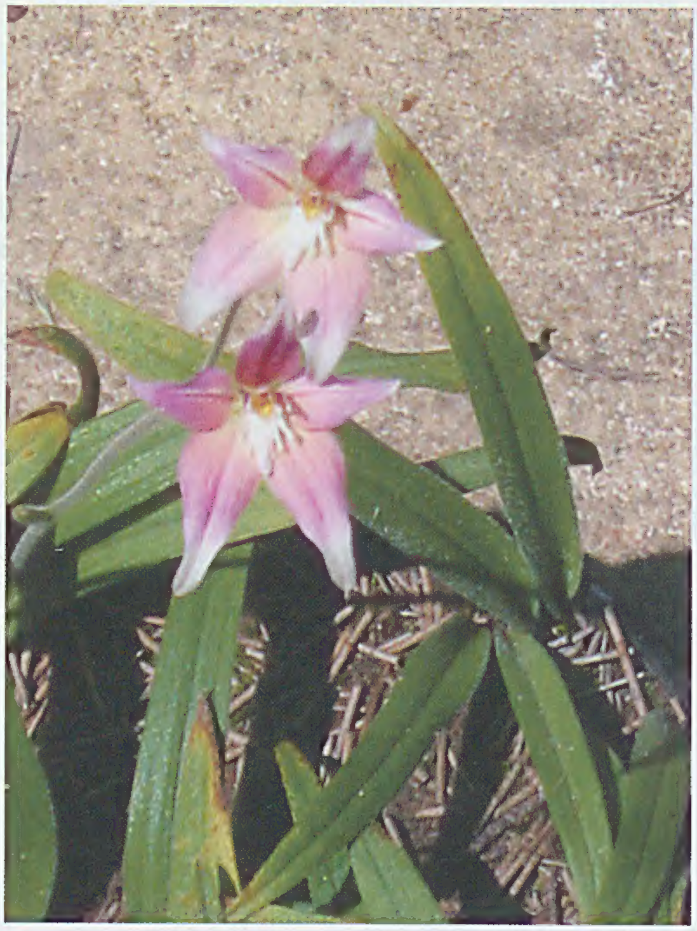
Caladenia latifolia Hybrids

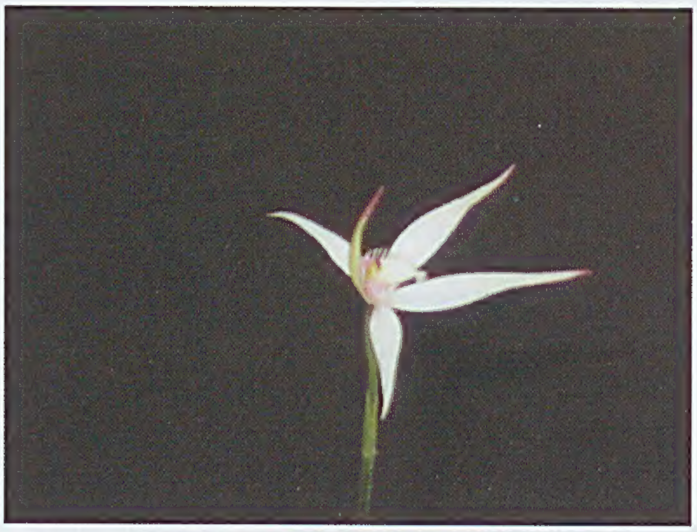
What beautiful pictures of *Caladenia* Fairy Floss Roslyn Capel showed us in the March 2010 issue of The Orchadian. Although one of the parents (*Calda. rigida*) is fungus dependent the other is not. *Caladenia latifolia* is an easily grown fast multiplying species. I find that *Calda.* Fairy Floss is also a fast multiplier but not quite as prolific or robust as *Calda. latifolia*. We grow the hybrid in our standard soil mix and repot in half new mix every year.

The comments on the use of spagnum moss are very interesting and I will try deflasking more species into it. I find that spagnum moss is good for Ptst. baptistii seedlings from flask for the first year. In subsequent years the tubers get smaller, possibly because there are few nutrients in spagnum and it goes black and slimy if fertilised. I repot one year old *Ptst.* tubers into a sandy soil mix for for the second year's growth. Fine sand works better than coarse sand in Adelaide because it retains moisture for longer in Adelaide's long hot dry summers. In my shadehouse I have to water lightly every week in summer to stop tubers shriveling up. Growers in each climatic region need to develop cultural techniques to suit the local conditions. It helps if a few mates experiment, record results and compare notes.

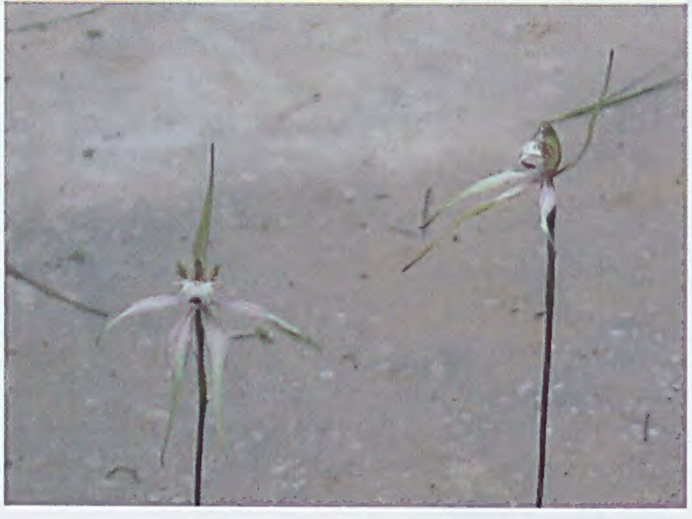
Caladenia Harlequin is a stronger grower than *Calda.* Fairy Floss but can be shy flowering. Other latifolia hybrids, such as *Calda.* Spiderman (Caladenia *latifolia x tentaculata*), have taken longer to increase in numbers and have not been as attractive. The small latifolia lip is dominant. Lack of available parents has limited my further hybridising with Calda. latifolia. I hope these few notes add to Roslyn's excellent article



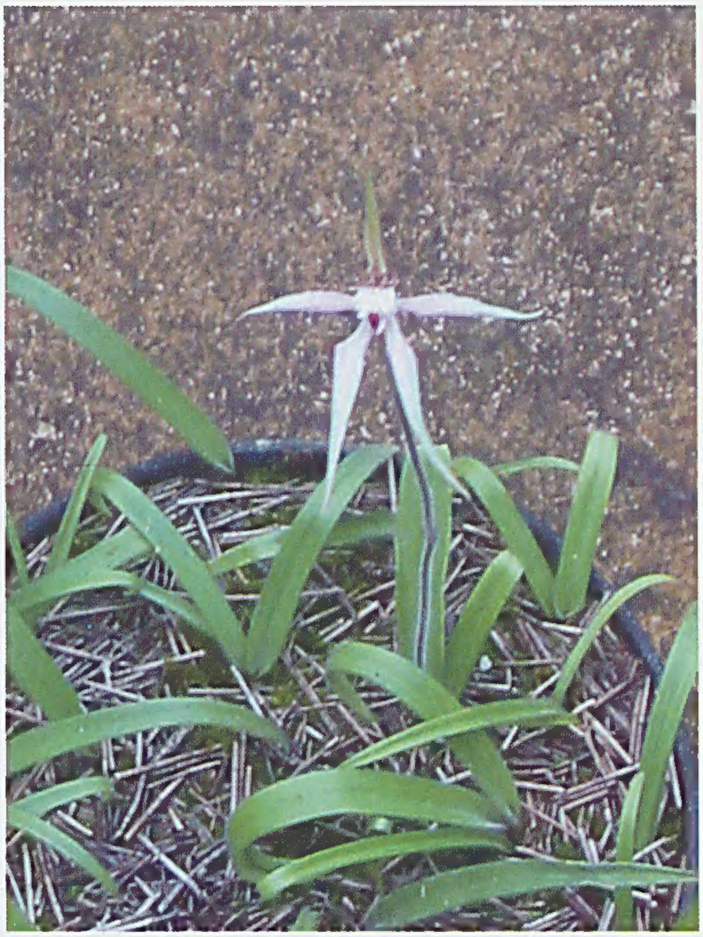
Caladenia flava x latifolia



Caladenia Fairy Floss 'White'



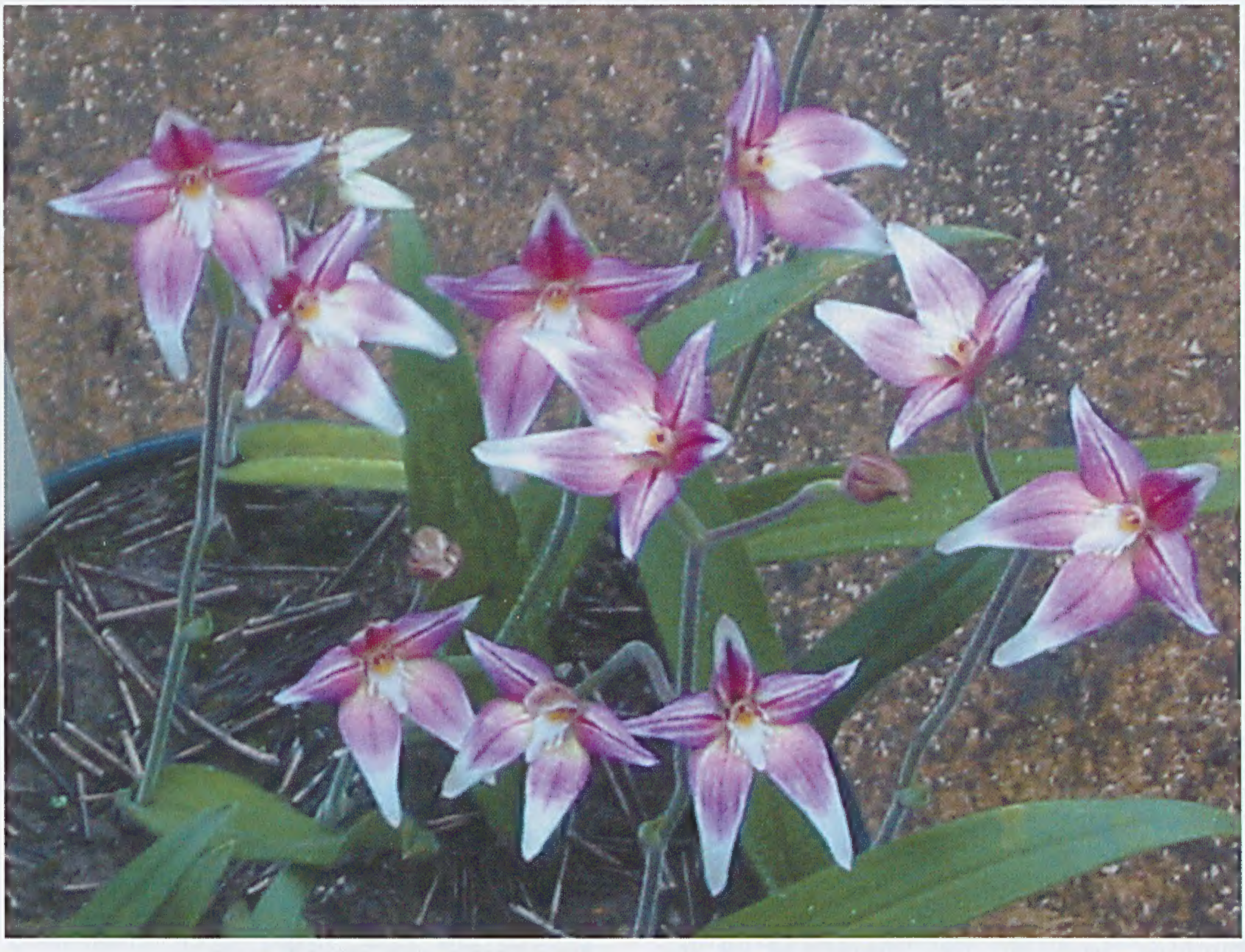
Caladenia Spiderman



Caladenia Spiderman

and stimulate a hybridist or two to do something.

Les Nesbitt
lesn@adam.com.au



Caladenia. flava x latifolia

EDITORIAL

I am looking forward to continuing Peter's good work in producing the Orchadian. I thank Peter and the contributors for handing over a fine publication in very good order.

To introduce myself, I have been growing orchids since 1969 and have an extensive collection of both exotic and native orchids. I have about 500 Australian species and hybrids. I recently updated my *Dendrobium speciosum* collection mostly sourced at the Kempsey *Dendrobium speciosum* show. I also have a medium sized collection of Australasian species and hybrids.

I am the Registrar for Judges for the AOC in NSW and I represent Australia on the Advisory Sub-committee on Orchid Hybrid Nomenclature, which meets twice a year in the Royal Horticulture Society rooms in London to set the policy for the RHS Register of Orchid Hybrids.

I like bush walking in Australia hope to do more. I have been on trips to Irian Jaya and Papua New Guinea to see and photograph orchids in their natural habitat. I also travel extensively overseas judging at orchid shows and photographing orchids in their natural habitat.

Since taking up the role as editor of the Orchadian I have received advice from many members that they would like to see more balance in the Orchadian. Some want more on hybrids while others would like better representation of articles from all regions of Australia.

The system of nomenclature of the orchids in each article will be that of the author. At present there is little consensus on the nomenclature system amongst the members or for that matter the scientists, this makes adopting one system of nomenclature difficult. The one thing that is certain, a majority of members do not want to change the names of their plants. I use and recommend the nomenclature in Monocot Checklist for species and the RHS Register or Orchid Hybrids for hybrids.

The Orchadian will only be as good as its contributors so I have been talking to a wide variety of people for all aspects of orchids to increase the variety of contributors and topics. It is important that the Orchadian continues to publish scientific papers that are properly refereed. There are a number of orchids that cause discussion and concern at our shows. I would like articles on these orchids so we can inform members and resolve some of the issues. I am hoping to publish in the next few editions some identifying features of *Dendrobium bigibbum* and its close relatives and identifying features of *Phalaenopsis rosenstronii.*

It is my intention to bring forward the deadline for articles to allow a full 4 weeks before the month of publication. So the deadline for articles for the September issue will be the end of July. This deadline will not apply to show dates as these will be accepted up to the time the proofs are sent to the printer.

Outside of orchids I am an engineer, I have expertise in water efficiency contract management and technical writing. I retired from full time work in 2008 and now work on a casual contract basis. My recent roles have been as technical writer of specifications and codes pertaining to plumbing and water supply. I managed and edited the Plumbing Standards of Australia twice. I am an experienced editor of technical standards and specifications.

Ian Chalmers Editor

Retrospective Winner of the G Hermon Slade Trophy 2009 for the Champion Australasian Native Species of the Year

Peter H. Weston
Chairman, Ira Butler Trophy Committee,
Royal Botanic Gardens,
Mrs Macquaries Road,
Sydney, NSW 2000.

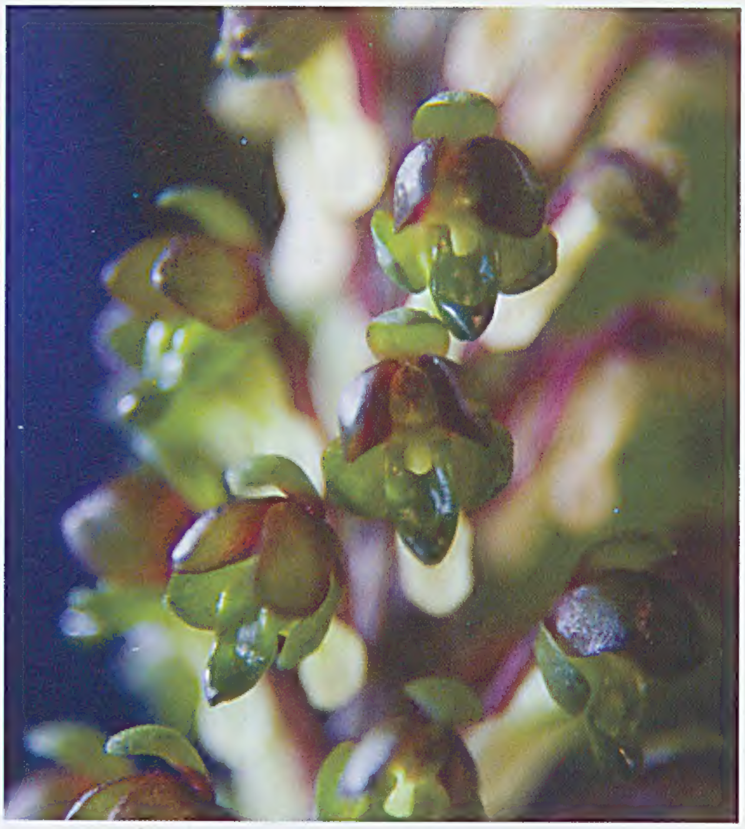
The G Hermon Slade Trophy 2009 for the Champion Australasian Native Species of the Year has been awarded retrospectively to *Dendrobium striaenopsis* 'Faye', owned by W. Brown. This plant was Grand Champion of the 2009 Tweed District Orchid Society show.

The orchid that was originally chosen as the winner of the G Hermon Slade Trophy 2009 was *Robiquetia wassellii* owned by Dendi Orchids. This entrant has had to be disqualified because *Robiquetia wassellii* is an Australian endemic species, according to existing scientific evidence and was thus ineligible for nomination as Champion Australasian Native Species of the Year. The nomination of this plant had been accepted on the basis of erroneous distributional information contained in an orchid database consulted by the judges. The Ira Butler Trophy Committee apologises to the entrants and to the community of Australian orchid growers for mistakenly accepting this nomination. Dendi Orchids' plant of *Robiquetia wassellii* has been retrospectively granted an award of special recognition for the Bill Murdoch Trophy 2009.

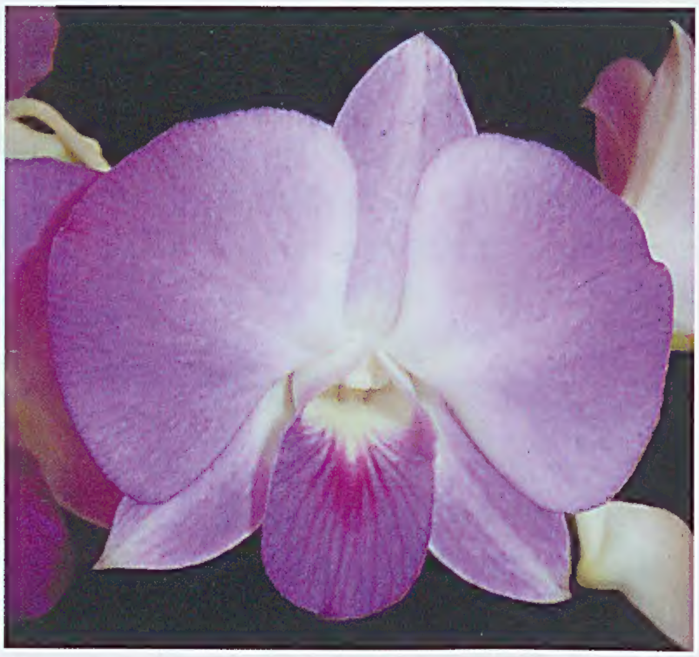
The name of the retrospective winner of the G Hermon Slade Trophy 2009 for the Champion Australasian Native Species of the Year warrants further comment. This plant was nominated as *Dendrobium phalaenopsis,* and in keeping with established practice of the Ira Butler Trophy Committee, the species name provided by the nominator was used as the name of the plant when the results of the 2009 awards were published in The Orchadian and on the Ira Butler Trophy web site. The Committee has, however, chosen to change the name of this plant to *Dendrobium striaenopsis*, now that it has been elevated to trophy winner, in order to avoid confusion.

Until now, the Committee has deliberately avoided imposing any particular "authoritative" taxonomy on nominations and instead has accepted species names provided by nominees on the condition that they be nomenclaturally legitimate and consistent with taxonomic circumscriptions that are, or have recently been, in current use. For example, the Committee has accepted nominations of species and hybrids under the generic names *Diplodium* and *Dockrillia*, even though these names are not generally accepted by plant taxonomists. Similarly, the Committee has accepted nominations under the name *Dendrobium speciosum*, even though most plant taxonomists have recognised numerous taxa within this species complex at either specific or infraspecific ranks.

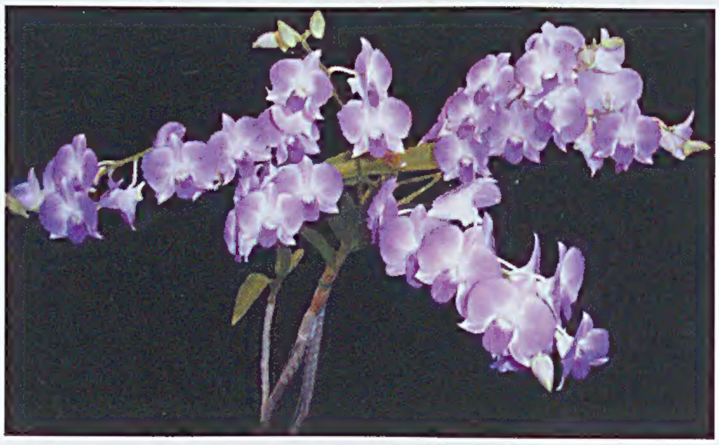
Until recently, several different circumscriptions of the name *Dendrobium phalaenopsis* were in general use by both taxonomists and orchid growers. One (e.g. Blake 1964, Dockrill 1969) mistakenly interpreted *Dendrobium phalaenopsis* as being restricted to eastern Indonesia. Another (e.g. Hawkes 1965, Karasawa 1986, Kamemoto et al. 1999) interpreted *Dendrobium phalaenopsis* as being widespread from north-eastern Australia to eastern Indonesia. A third (e.g. Clements 1989) saw *Dendrobium phalaenopsis* as an Australian endemic taxon, either at specific rank or as a variety of *Dendrobium bigibbum*, (see e.g. Dockrill 1992). Bill Brown nominated his plant as *Dendrobium phalaenopsis* using either the first or second of these circumscriptions of this name. In 1989 Mark Clements and David Jones published a new name at species rank, *Dendrobium striaenopsis*, to apply to the population formerly known as *Dendrobium phalaenopsis* or *Dendrobium phalaenopsis* var. *schroederianum* or *Dendrobium bigibbum* subsp. *laratensis* from the Tanimbar Islands. It is to this Australasian, not Australian, taxon that Bill Brown's plant belongs.



Robiquetia wassellii



Dendrobium striaenopsis



Dendrobium striaenopsis

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The Australian Region

Is there a Natural Boundary?

November 1990

Allison Webb

This is a preliminary report outlining the results obtained thus far in an attempt to definea border for the Australasian region which is easy to describe and suits the purposes of the Australasian Native Orchid Society. It is not the finalarticle which can be prepared only after more research and will contain information which will be scientificallyjustifiedand based on the observations of the region concerned. It will allow the Society and growers to determine whether or not a particular orchid grows within the Australasian region.This should be a report which will be entirely self explanatory and contain all the necessary background information of any concepts introduced.

Contents of this report:

Introduction: An early version of the Introduction for the final report. Discussion

– A summary of plate tectonics.

– Geological maps relating continental masses to geological timescale and plant development.

– Development of the Australasian flora.

– How this relates to orchids and ANOS.

– Why the current border is unsatisfactory and suggestions for an alternative.

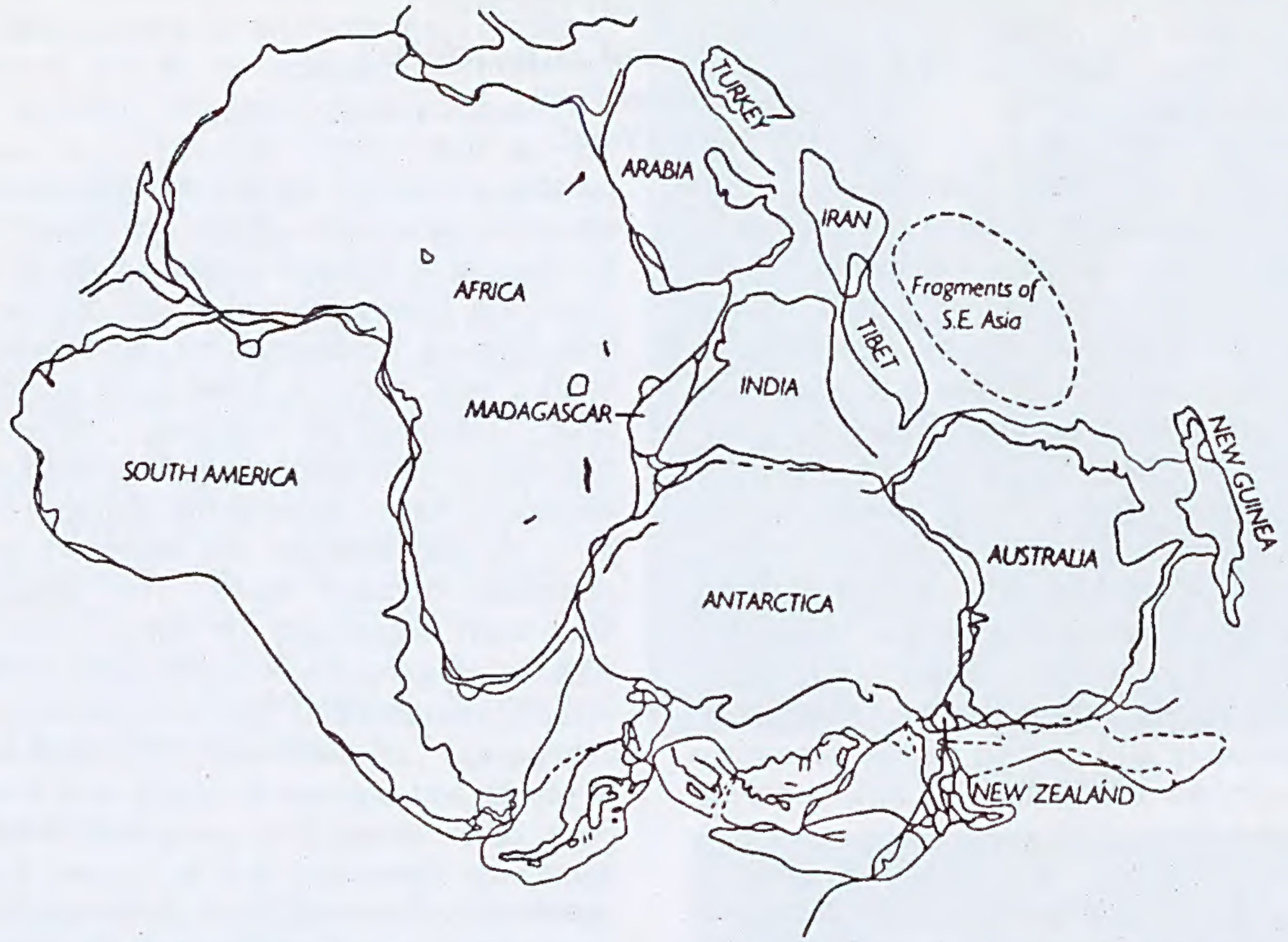
Bibliography: References consulted to date.\

Introduction.

With the preparation of the fourth edition of the `Checklist of Australian Native Orchid Hybrids' completed it seemed a natural progression to begin work on a similar listing of Australasian native orchid hybrids as growers are becoming more interested in these and the species from which they were bred. It was not long after major inroads had been made into the synonymy of the Dendrobiums when it became apparent that orchid distributions did not appear compatible with the ANOS definitionof the Australasian region. The distribution of many species overlaps the border and a number of closely related species (ie. in the same section of a genus) are excluded. Having come through school at the time when the theory of continental drift was finallygaining credibility, but nonetheless hearing little about it, I began to wonder what relationships existed between Australia and the adjacent islands and their respective floras.I knew of the Wallace Line as a division between the Malesian and Australian floraand fauna. This division had been suggested by Alfred Russel Wallace after he spent eight years (1854 - 1862) wandering in the 'Indo-Australian archipelago' to determine `the relations of plants and animals to space and time, or, in other words, their geographical and geological distribution and its causes'.This report is about the geographical distribution of the Australian floraltype, with emphasis on the orchids, and the reasons for this distribution. It is to determine whether or not the current ANOS border is appropriate and if not to propose an alternative.

Discussion.

It is the currently accepted view that the continents have not always been in their present locations, but have formed, at various times, one or two supercontinents which have broken up and reformed. Unlike the early view taken by Sir Charles Lyell that the land submerged while the ocean floorrose at varying stages, a view easily shown to be unfeasible, the theory of plate tectonics has the continents as huge rafts of stone borne on the molten layers beneath and in constant motion around the globe. Thus what is continental land has always been continental land and has been submerged between ice ages when the polar caps have shrunk and during their formation. The long-standing view that the continents were fixedand unchanging yielded to strong evidence supporting continental drift in the 1960's and 70's.



Map 1. Gondwana, showing the relative positions of the modern continents 170 my B.P.

What all this has to do with the orchids of today comes from the time when the southern continent, Gondwana began to breakup. By the time Africa and South America moved away from Antarctica and from each other isolating their inhabitants, angiosperm development was already well underway and the primitive ancestors of todays orchids must have been widespread and flourishing.

South America eventually became connected with North America and Africa with Europe, both of which had originated as part of the northern continent Laurasia. India travelled northwards passing from temperate to tropical to temperate regions, which resulted in the extinction of most of the original flora, and collided with Asia forming the Himalayas in the process. New Zealand and New Caledonia separated from Australia 70 my B.P. thus retaining some original Gondwanan flora. The Australian plate broke away from Antarctica, and pushing what is now southern New Guinea as the leading edge before it, headed northwards to also collide with the Asian continental plate on the edge of the shallow sea extending to the east of Borneo, but only after isolation for 30 my.

The demise of the supercontinents had a dramatic effect on wind and ocean currents and hence on weather patterns. What had once been lush temperate rainforest became very dry. As a consequence a new type of flora evolved which was adapted to suit these conditions. This gave rise to the distinctive Australian flora typified by the south west region of Western Australia. The deciduous terrestrial orchids are also a consequence of this drying of the land. They are a highly specialised group particularly suited to their environment. It is this high degree of development which has given very distinctive species with a large number of monotypic genera and high endemism.

The east coast of Australia and New Guinea retained their original vegetation which became tropical rainforest with the northward movement of the land. Tasmania remains as a living relic of ancient Gondwana along with a few pockets in New Zealand, Australia and South America as *Nothofagus* forests. In fact it is the distribution of such plants that provided vital clues as to the origin of the continents.

When the Australian plate collided with Malaysia forming the New Guinea highlands, the way was opened for interaction between the flora and fauna of these two areas. It is the result of this intermixing that is of interest here but the means and consequences of evolution should be considered first.

Evolution is the process by which one species changes gradually into another. The Hardy Weinberg Law shows that in a large population in which random mating occurs the original proportion of dominant to recessive characteristics will be maintained from generation to generation.

There are three types of selection which result in this being altered.

1. Disruptive selection occurs when two or more extremes in a population increase at the expense of intermediate forms.
2. Stabilising selection is when extreme individuals are eliminated.
3. Directional selection occurs when the mean value of a population shifts in favour of a certain characteristic.

It is this last source of change which is of most importance to evolutionary processes as it is the physical appearance, or phenotype, that is being selected as a result of interaction with the environment. Selection of a particular characteristic will also affect others as the action of every gene is affected by other genes.

If a population becomes isolated from its gene pool it is free to respond to local situations. The distance necessary to isolate a plant population can be very small with 15 metres being sufficient for some insect pollinated species. After isolation it is merely a matter of time before a new species is distinguishable.

Most populations are kept from intermixing by hybridisation as hybrids produced tend to be sterile. However hybridisation is of importance as it serves to recombine parental characteristics which may result in offspring better suited to new environmental conditions or better able to colonise a new habitat than either parent.

It is generally agreed that the angiosperms (flowering plants) evolved from a primitive gymnosperm. Although exactly where and when remain uncertain it is believed to have been in western Gondwana between Africa and South America. Fossil records do not show the early angiosperms which means quite simply that they evolved well away from the swamps where fossils are formed and were already quite diverse in form when they reached these areas. This is not too surprising as the evolution of the flower meant plants could colonise dryer areas. The first angiosperm pollen appears in the early Cretaceous about 125 my B.P., but it is possible that angiosperms were developing as early as the Mesozoic or Paleozoic, at the time of Pangaea II, in which all land was in a single supercontinent.

The flower evolved to suit a pollinator and has been continually modified to this end since. A trend has existed for flowers to be reduced from many parts to few, the ovary has become inferior and radial symmetry has given way to bilateral symmetry in advanced forms.

Orchids are a very widespread family of advanced plants indicating, perhaps, that they evolved very early. Despite this there are species present in varying stages of evolution, causing taxonomic difficulties, which are carrying on the major diversification which has occurred since the continents separated.

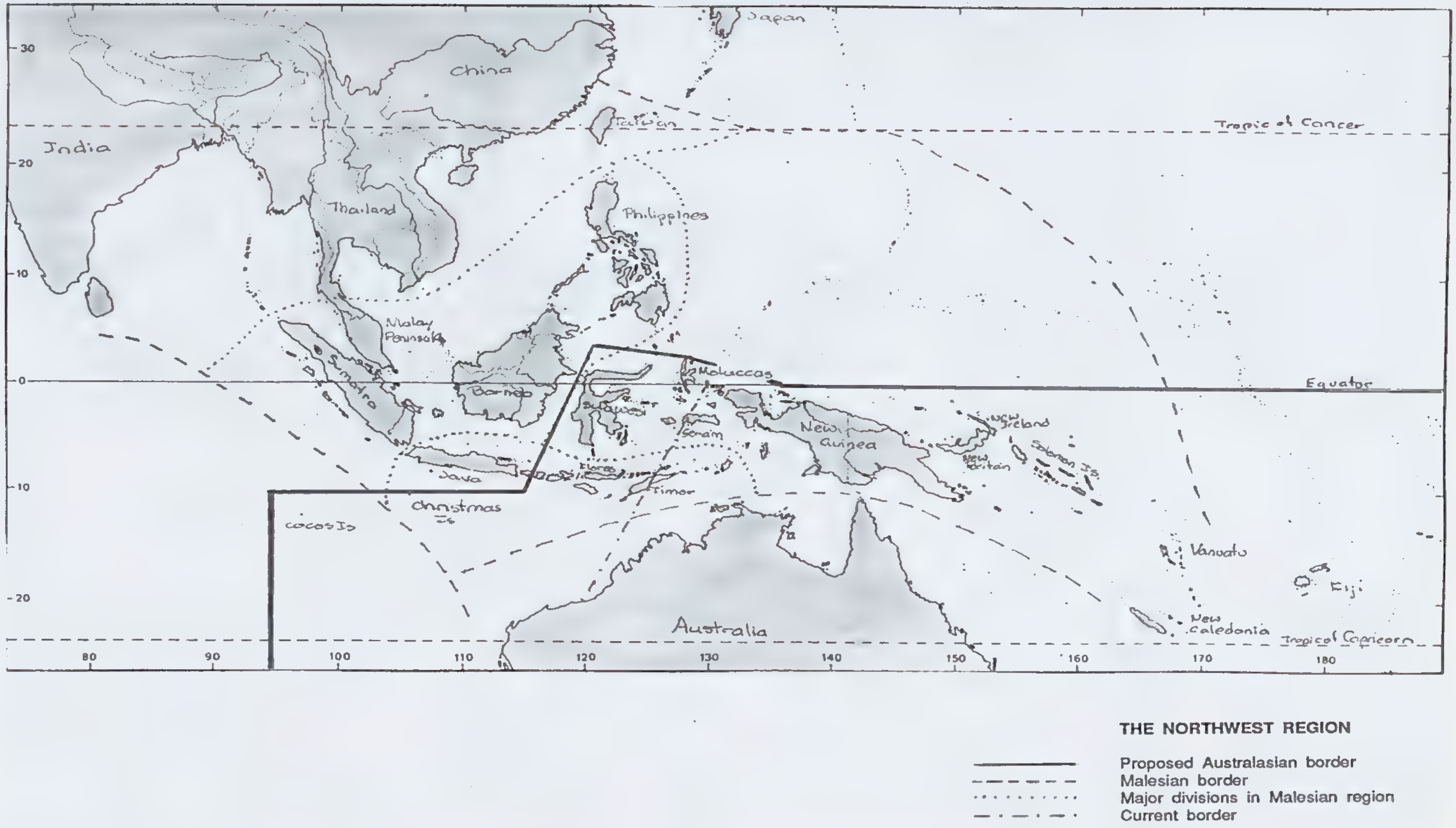
The origin of orchids is believed to have been tropical Asia although the fossil record is all but nonexistent. This is because of the predominant occurrence of orchids in the tropics which are areas of rapid decay. Combined with the herbaceous habit which does not readily form fossils, production of pollinia rather than individual pollen grains and dispersion of these by animal vectors rather than wind and the minute, easily degradable seeds of which none are conducive to fossil formation. It is believed that the orchid family began as a lily-like flower. *Apostasia* is an example of the more primitive orchid amongst the modern forms. By the late Cretaceous or early tertiary orchids were distinguishable at the sub-family level and widespread due to the small seeds which are very suited to wind dispersal. Providing suitable conditions are found with mycorrhizal fungi to assist germination, the plants are self fertile, and a suitable pollinator is present a new colony can be established. Just how quickly this can occur can be seen from the recolonisation of Krakatau. In 1883 all life on the island was destroyed when the volcano exploded. Within 13 years species of *Arunda, Cymbidium* and *Spathoglottis* were growing and by 1933 there were 18 species of terrestrial orchids and 17 epiphytes. Krakatau is 45 km from Java, the closest major source of vegetation.

When Northern Australia and New Guinea reached Asia both were lands with their own specially developed flora and fauna. Despite this, intermixing occurred with an influx of Asian species into Australia. Very limited migration in the other direction occurred probably as a result of the typical Australian flora being adapted to semi-arid conditions with low nutrient soils which are not found in Malaysia. The Asian species found environments much to their liking and newly formed, uncolonised land such as New Guinea.

The highlands of New Guinea became a new centre of diversity with many species indigenous to this island. Many of these species are endemic to New Guinea and occur over a narrow range in isolated areas. Many are species of Asian genera which have developed to become a distinct part of the New Guinea flora. Genera such as *Cymbidium, Dendrobium* and *Paphiopedilum* have species which are found only in New Guinea and the surrounding islands. In fact, with the exception of a few cosmopolitan species such as *Calanthe triplicata* and *Spiranthes sinensis*, most species are found only in small areas.

This brings us to the main question. Considering the origin of the lands now forming Indonesia and the fact that most species are not widespread is there a region of demarcation between the floras, and in particular the orchids, of Asia and Australia? Alfred Russel Wallace proposed what is now known as the Wallace Line from observations he made throughout Malaya and Indonesia, as a naturally occurring division between what was known as the Indo-Malasian and Indo-Australian regions. This line follows the edge of the Asian continental shelf between Borneo and Bali on one side and Sulawesi and Lombock on the other. Throughout his works he often commented on the contrasts between the two regions and wrote: `In the Malay Archipelago there are two islands, named Bali and Lombok, and separated by a strait only 15 miles wide at its narrowest part. Yet these islands differ far more from each other in their birds and quadrupeds than do England and Japan...'. The island of Sulawesi, probably a remnant of one of the two supercontinents poses a few problems as far as this report is concerned. Firstly it does have a number of species of modern Asian orchids the number and distribution of which needs further investigation. The islands east of Sulawesi in the Banda Sea, are predominantly volcanic and as such are new lands. These have been colonised in the main from species rich New Guinea and as a consequence there is little doubt that they belong in the Australasian region, although they do show some alliance with Asian species, especially as they are a stepping-stone in any migration in a south eastern direction.

The Wallace Line through the Straits of Makassar is a major zoogeological boundary but is less well defined for plants. However, a Malesian region has been defined (see map 2) which includes land from the Malay Peninsula to New Guinea. This region has been further divided into three zones which occur as a result of climatic differences. These are floristic zones, which are also reflect the amount of Asian or Australian elements. The major east-west boundary is the Wallace Line (See Page 356) . From the above it is apparent that the Christmas and Cocos Islands are not floristically part of the Australasian region. They are coral atolls which have been colonised from Sumatra



Map 2. Southeast Asia showing the proposed border and the major floristic zones of Malesia.

and Java. A look at the indigenous species supports this. These islands are included in the Australasian region because they are Australian territories and they are the most western lands included, but it must be remembered that their flora does not have the same recent history as that of Australia.

The Pacific Islands East of Australia are either of volcanic or coral origin. As a result they have never been in close contact with any continent and their flora has migrated across the oceans or been introduced by man, along with many species of animals. Again the origin of the indigenous flora is Australasian at least as far as Tonga. The major path of migration has been in a south easterly direction from Asia via New Guinea with very little colonisation from South America.

The Antarctic Circle as the Southern border allows inclusion of Macquarie Island which is an uprising in the Antarctic Ridge which once joined Australia and Antarctica. The southern border is also the southerly most limit for plant growth.

In Summary.

There is a distinctive Australasian flora at the species level which has developed in isolation from the rest of the world. The reasons for this stem from the geographical origins of the Australian continent in the supercontinent Gondwana. This land mass began to break up into smaller continents at about the same time the angiosperms attained supremacy over the gymnosperms and spread world wide. The break up and movement to current positions of the continents resulted in isolation followed by remixing of the worlds flora (and fauna) giving rise to plant communities which are varied throughout the planet and often distinctive but none more so than that of the Australasian region which has only recently come into contact with other floral groups after 50 m.y. of isolation.

Due to changing longitude and other climatic changes Australia has developed uniquely. In this land marsupials developed to the exclusion of other mammals and the only other place others are found are a few species in South America. Likewise the flora of this region is unique and is restricted to this area in a reasonably clearly defined zone. The so-called `mixing zone' of Southeast Asia has also been divided into secondary floristic zones, see map 2. These are the result of much evolutionary history and the climate consequences of the tectonic history of the region.

The Australasian region can be defined as follows:

The Southern limit is the Antarctic circle at 60° S latitude between 95° E and 160° W longitude. The western limit is a line from 10° S 95° E to 60° S 950 E. The eastern limit is a line from the equator to the Antarctic Circle at 1600 W longitude. The northern limit is a line from 10° S 95° E to 100 S 115° E. From this latter point the boundary follows the 1000 fathom line between Borneo and Sulawesi to 4° N 120° E when it curves to include the Moluccan islands returning to the equator at 130° E. and following the Equator to 1600 W longitude. This region includes Sulawesi, and the Moluccas in the north, Christmas and Cocos islands in the west, Macquarie Island in the south and Tonga and Samoa in the east.

This region defines the natural spread of the flora originating on the Australian continent present in areas immediately adjacent to the mainland. Of necessity this also includes a number of species of Asian origin and a few widespread species currently found in Asia. Most of these species have become naturalized and those that have developed in the area are predominantly endemic. Many of these species now bear little resemblance to their Asian cousins eg. *Dendrobiums* and are happily considered Australasian while others are very closely related to modern Asian species and are obvious interlopers, eg *Paphiopedilum*. The region chosen excludes as many as possible of this latter group while including as large a portion as possible of those of Australian origin which have migrated northwards. A few species of Australasian affinity are excluded eg. *Dendrobium taurinum* but when deciding a geographical border this cannot be avoided.

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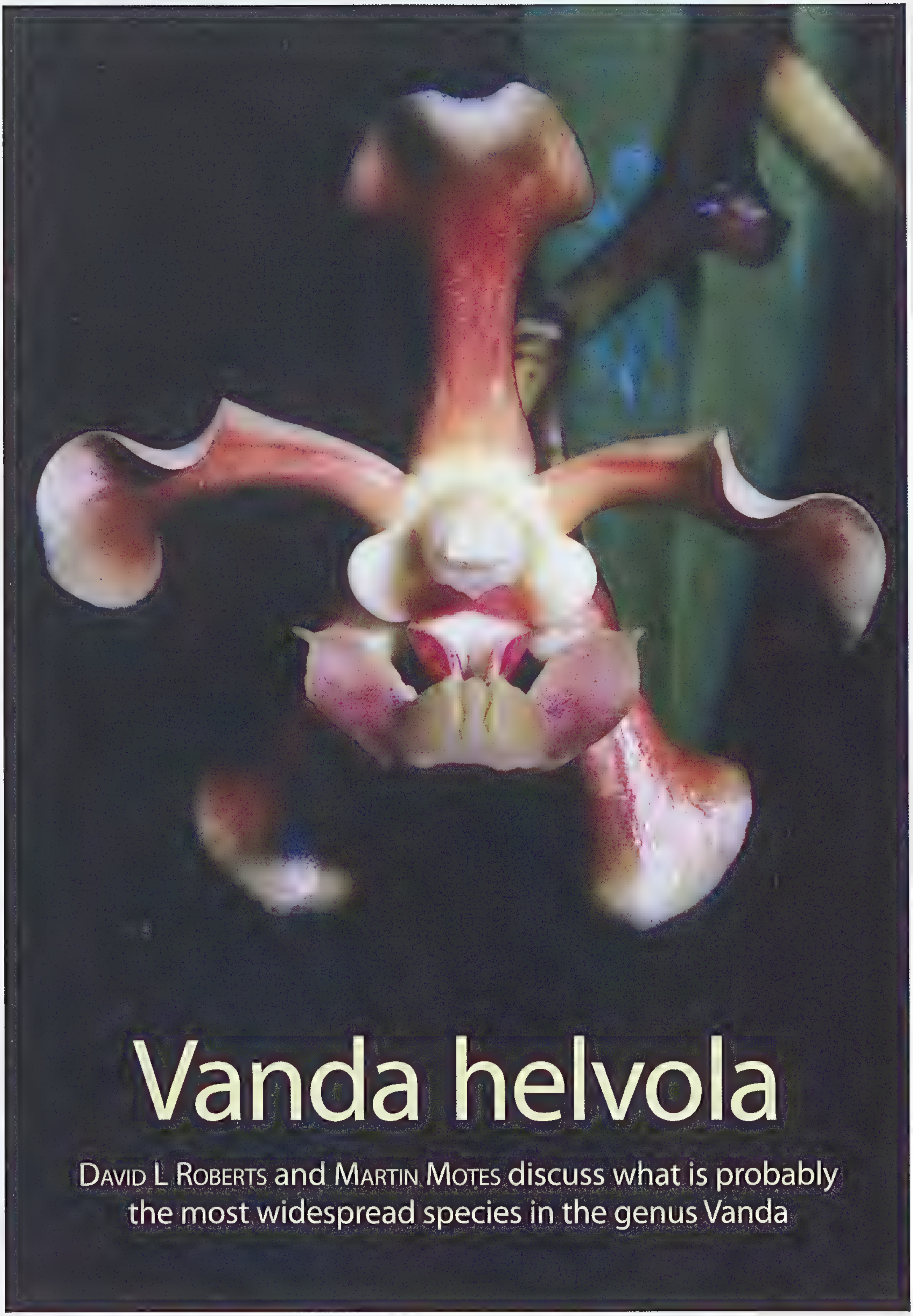

Vanda helvola

David L Roberts and Martin Motes discuss what is probably the most widespread species in the genus Vanda

WALLACEA, a transition zone between Sundaland (the Malay Peninsula, Sumatra, Borneo, Java, and Bali) and Australia-New Guinea, is a bio-geographical region incorporating a number of Indonesian islands (Nusa Tenggara, Sulawesi and most of the Maluku) which lie in deep water. The deep-water channel running through the region persisted even during the last glaciation, when the sea levels dropped, resulting in land-bridges forming in the Sundaland region, and in Australia-New Guinea. This barrier gave rise to distinct fauna and flora on either side of Wallacea.

These distinct differences were first noted by the 19th century naturalist, Alfred Russell Wallace, after whom the region is named. Several lines have been drawn by biologists through the region to demarcate the separate biospheres, the most famous being the Wallace line itself, which runs between Bali and Lombok and carries on north through the Makassar Strait, separating Borneo and Sulawesi. Other lines that have been drawn through the region are Lydekker's and Weber's. Lydekker's line forms the eastern margin of Wallacea, separating New Guinea and the Aru Islands from Wallacea and Sundaland, while Weber's line passes between Maluku and Sulawesi.

Vanda distribution in Wallacea

Only three species of *Vanda,* a predominately southeast Asian genus, have made it across Lydekker's line.

The first is *V. hindsii,* the most southerly species in the genus, which is found from New Guinea through the Solomon Islands and into northern Queensland. The second is Rumphius' enigmatic *V. furva,* which was known until recently, when the taxonomic confusion of this species was unravelled, under its synonym *V. lindenii* (Motes & Roberts 2008). Unlike *V. hindsii,* this species stretches west from New Guinea to the Maluku and the Philippines. The third species, *V. helvola*, has also made it across Lydekker's line to New Guinea.

Vanda helvola is well known from Western Malesia (Peninsula Malaysia, Borneo, Sumatra and Java), although in *Orchids of Borneo* Vol. 1, there is a personal communication from Neville Howcroft, an Australian forester who was based in Papua New Guinea many years ago, that the species was recently recorded from the island (Chan *et al.* 1994). O'Byrne (1994) mentions the species occurring on New Britain, an island northeast of Papua New Guinea, and on the mainland from Morobe province. In a recent personal communication, O'Byrne said that he never saw it in flower, but that just before leaving New Guinea, Wolfgang Bandisch found it growing in quantity on the shores of Lake Kutubu in the Southern Highlands, while Neville Howcroft reported seeing it in Morobe. The New Britain references came from orchid enthusiasts in Rabaul, where it was known as '*Vanda hindsii* Yellow'. Chan *et al.* (1994) also mention recent records from the Philippines, but we have not been able to verify these.

Recently, we discovered a specimen in the British Museum (538908 BM) collected by CE Carr (coll. no. 16726) on 11 November 1935 at 4,000ft (1,200m) near Boridi, a village in the Owen Stanley Range of the Central Province, Papua New Guinea. Carr's Papua New Guinea expedition, between 1935 and 1936, was unfortunately to be his last. Having previously collected extensively from 1919 to 1932 in Peninsula Malaysia, Borneo and Sumatra, he finally succumbed to blackwater fever, a complication of malaria, on his return to Port Moresby in 1936. The Owen Stanley

Range, where he collected during this period, is located in the southeast of the country, famous for the Kokoda Track that runs across the range, and the battle that was fought over the track between Australian and Japanese forces in 1942 during World War II.

Vanda range in Wallacea

The range of *Vanda helvola* from the Philippines and Java to the south of Papua New Guinea makes it the most widespread species in the genus. As one would expect from such a widespread species, *V. helvola* is very variable, with forms with lighter coloured flowers from northern and western Sumatra being known as *V. leucostele*, which we consider a synonym. In contrast, the forms from Mount Kinabalu are dark, dull purple (see Chan *et al.* 1994 for a photograph of the Mount Kinabalu form). Another related species is *Vanda merrillii* from the Philippines. It is possible that the concolor red forms of the latter, known as *V. merrillii* var. *rotorii*, may be the source of Philippine reports of *V. helvola.*

Vanda helvola is easily distinguished from all other species by its large, flat, distinctly triangular-deltoid, nearly concolor lip, which is also motile, a feature unique in the genus. The lip of *V. merrillii*, on the other hand, is smaller, roughly triangular, distinctly two-toned yellow and red, and the mid-lobe edges roll backwards longitudinally in living specimens, a character which may be less evident in pressed specimens. In habit, plants of *Vanda helvola* are shorter overall with shorter, broader leaves than the other two species, compared to the longer, more narrow, curved leaves of *Vanda merrillii.*

While *V. merrillii* has shown great potential in hybridisation, delivering the darkest red colours to hybrids of considerable size, *V. helvola* has made no contribution. This lack of use is due to the dull colour of the Javanese forms, which are more available in cultivation, and the short, few-flowered inflorescence compared with *V. merrillii*, which produces up to 18 flowers per inflorescence. However, the Mount Kinabalu form of *V. helvola* may offer interesting new colours to *Vanda* breeding.

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Martin Motes is a leading hybridiser of *Vanda* whose hybrids have received numerous awards in international competitions

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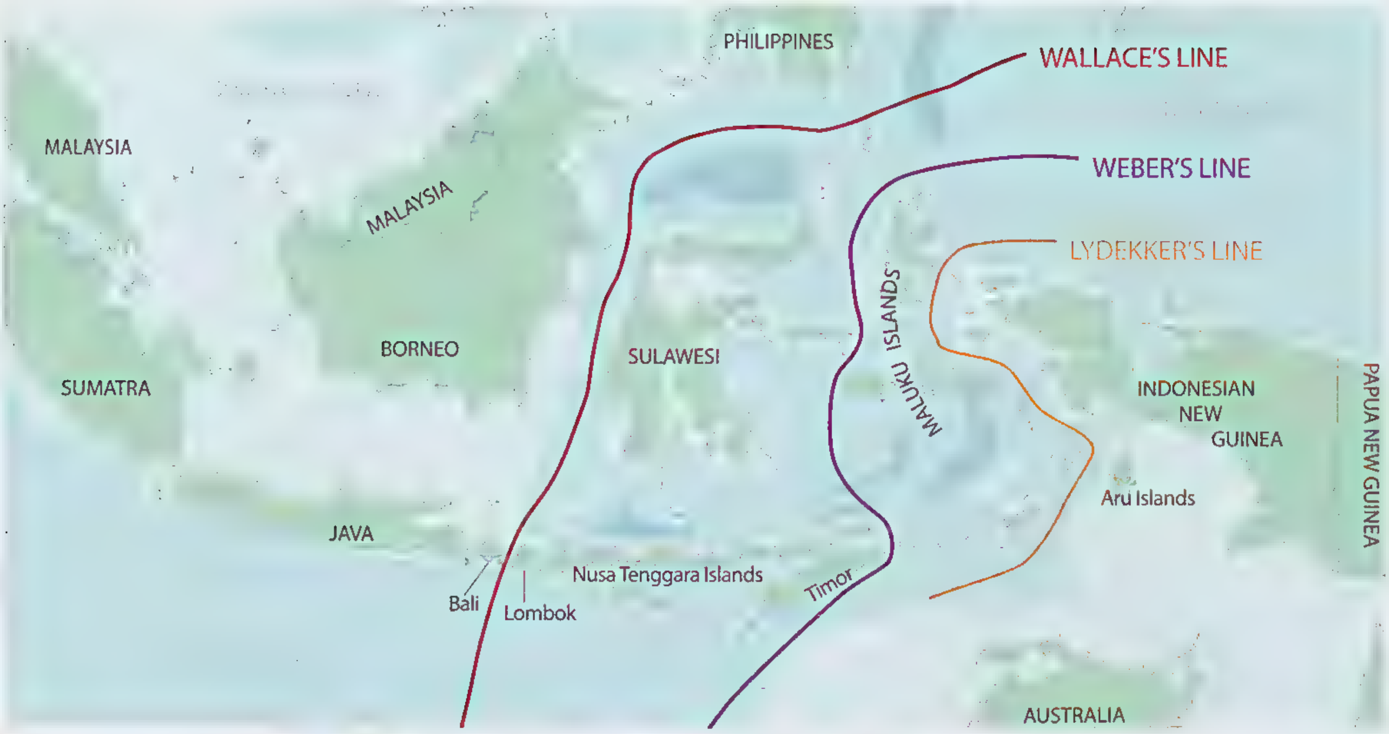

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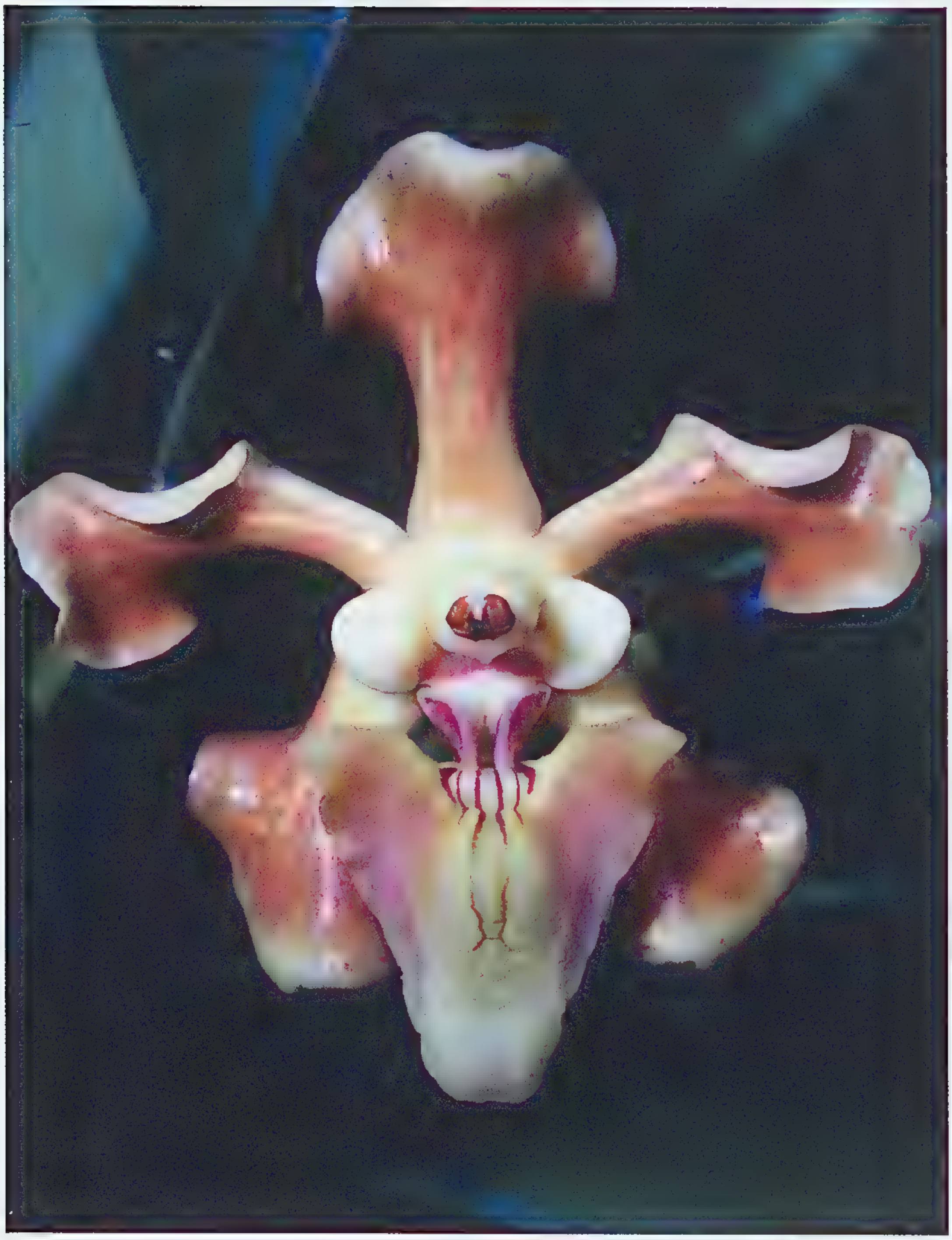
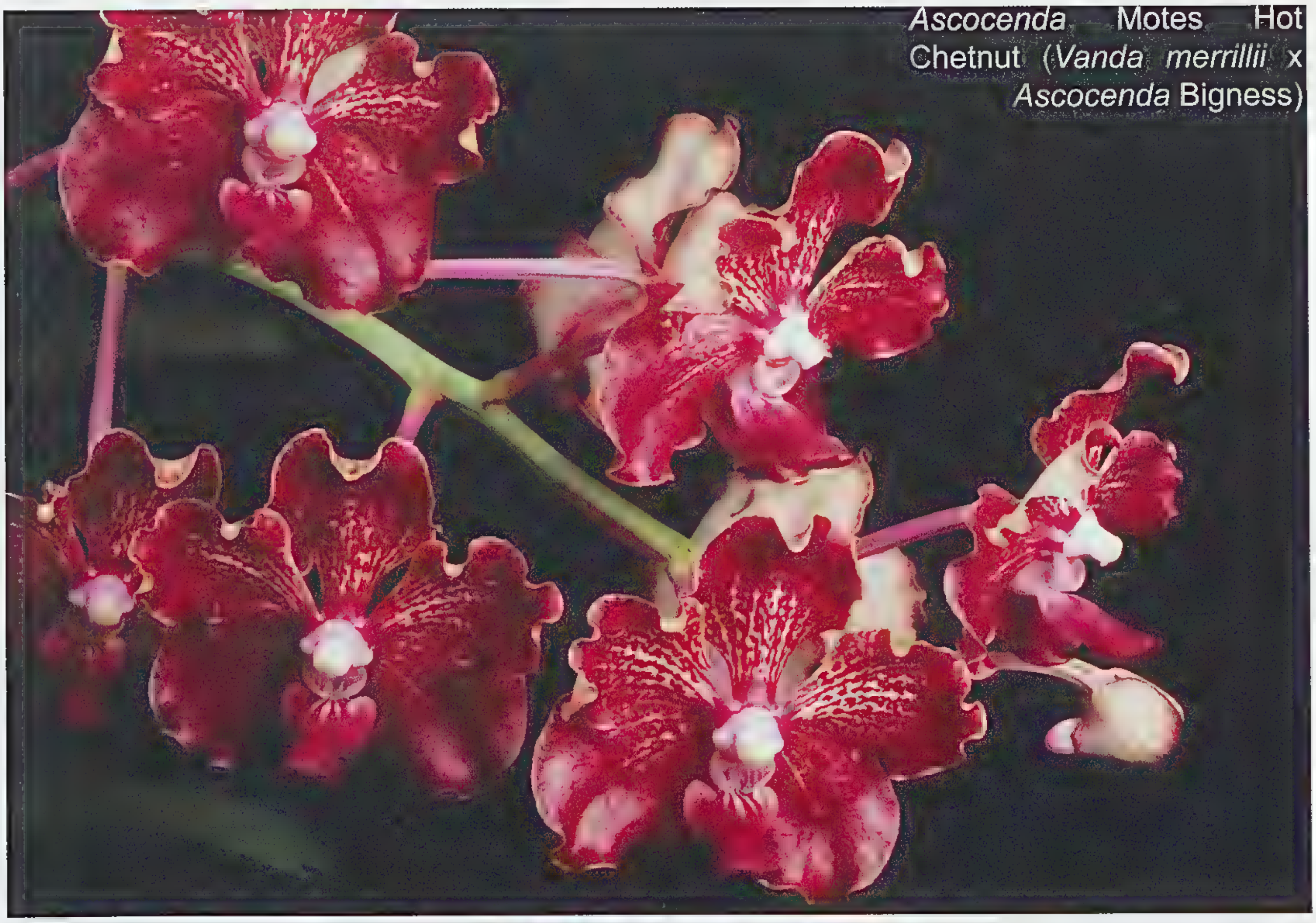
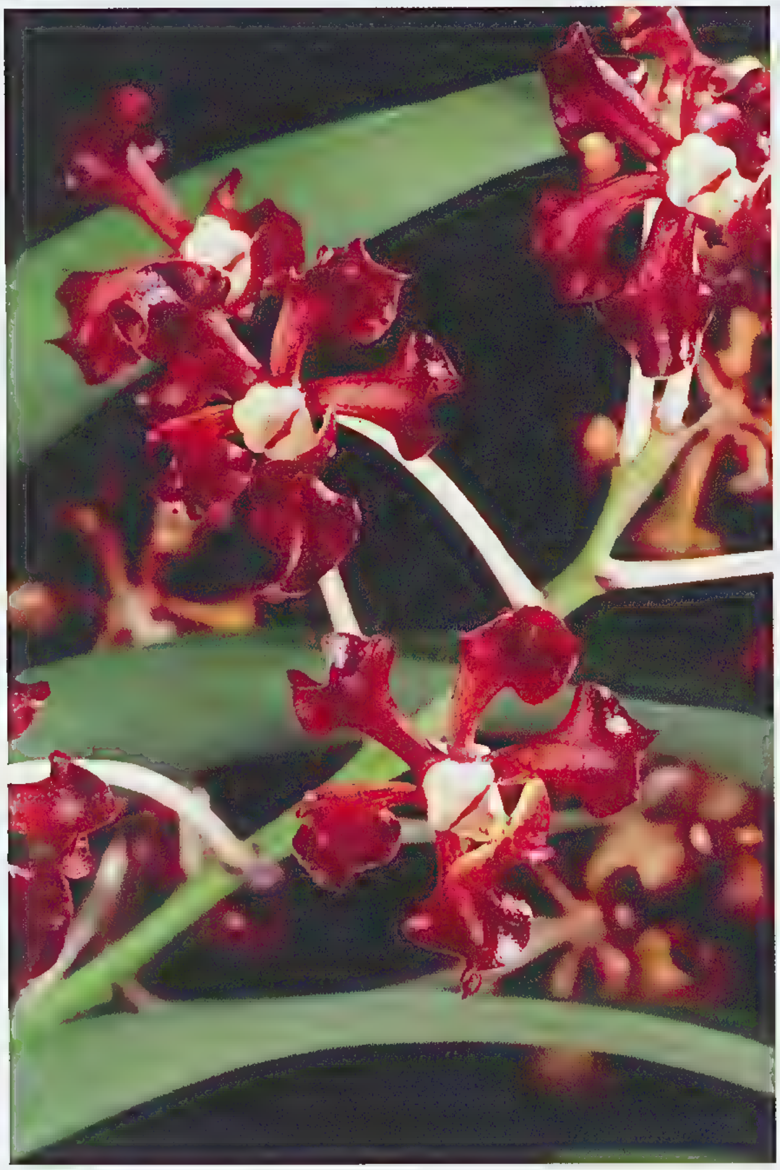
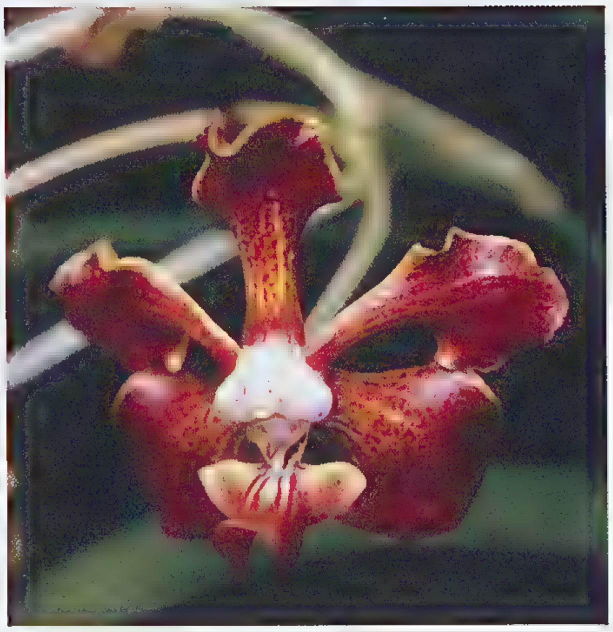


Vanda helvola



Ascocenda Motes Hot Chetnut (*Vanda merrillii* x *Ascocenda* Bigness)





Above *Vanda merrillii*

Left *Vanda merrillii* var. *rotori* 'Mary Motes'

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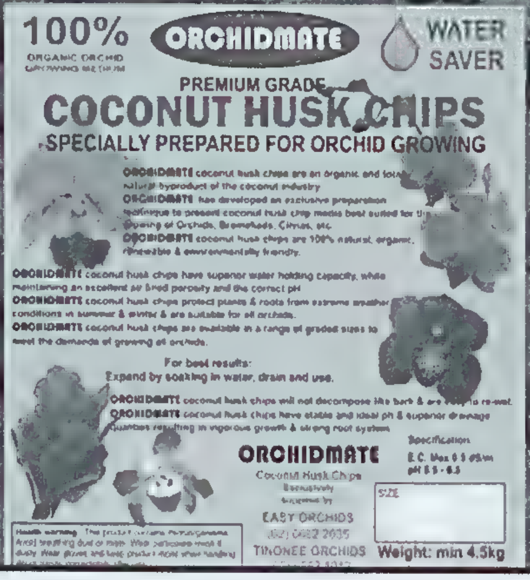

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EASTER IN THE HIGH COUNTRY

Members of the Terrestrial Study Group arrived in a steady stream from Thursday onwards. Several came with tents and others with vans to the Wulgulmerang Recreation Reserve. Facilities had been upgraded recently, following the bushfires. Beautiful weather welcomed us, although some found it chilly at night.

On Friday afternoon, the early-birds parked at Mt. Hamilton, and most walked down the Barry Way, spotting orchids along the bank. As we descended the narrow, quite steep gravel road, photographers were kept busy with *Acianthus exsertus*, *Diplodium aestivum*, *D. coccinum*, *D. laxum*, *D. fischii* and *D.* sp aff. *revolutum*. Those orchid spotters with goat feet also enjoyed *Corysanthes hispida*, but reportedly with flowers not yet fully open. What a lovely start to a weekend of orchiding!

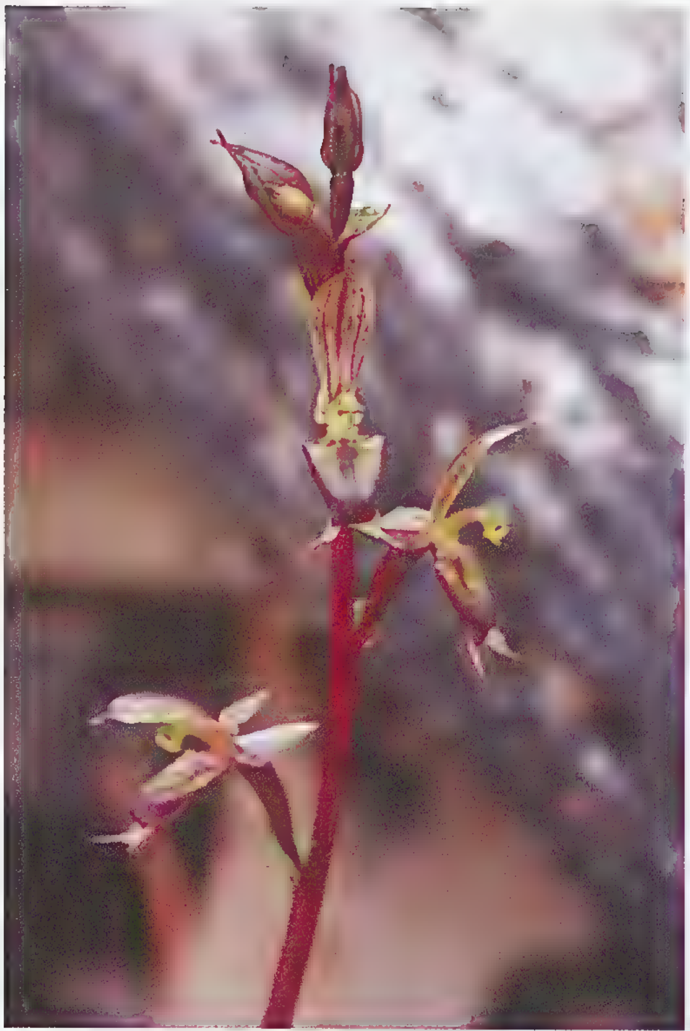
By Saturday morning our numbers were over 30, so two groups were formed and their members headed off to alternate areas. Those for the Little River Falls area packed into 4WD vehicles. A very busy and rewarding morning followed as we spotted *Diplodium atrans* and many examples of the species we had seen on Friday. The *Corysanthes hispida* were much easier to photograph here. Being so elevated, we frequently had lovely glimpses of the surrounding hills.

A ten minute lunch break was all we could manage before Bill was urging us along to Hanging Rock for the amazing 360 degree viewing of the surrounding mountains and the valleys below. A very brief stop, and little time allowed for adventure on the rocky ledge, but photographers were busy capturing the brave ones who did venture onto a very scenic rocky outcrop.

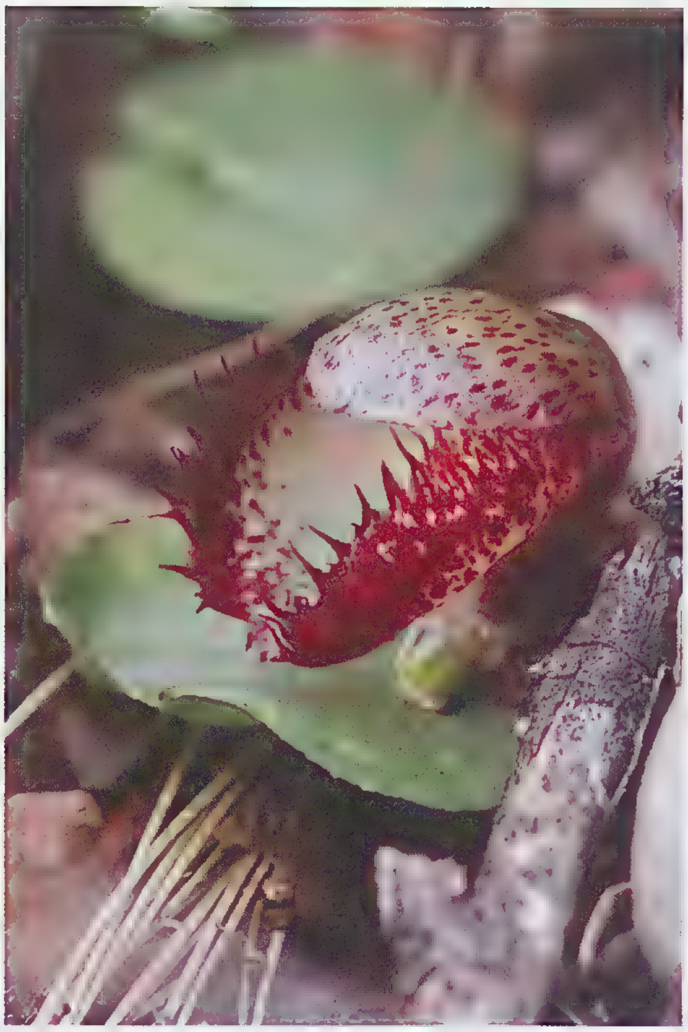
We returned to join the other group who were enjoying a casual picnic after their morning on Mt. Hamilton. Then both groups combined and drove along the Limestone – Black Mountain Road at the eastern edge of the National Park, stopping for a walk near a creek. A snake seen here was lazing on a rock near the water.

On Sunday morning, the two groups went off to their second venues. Our group (about 12 people) had a busy time on Mt. Hamilton. Quite a few species were seen and, for us, the highlight began when Joan exclaimed with great delight that she had uncovered some *Corysanthes hispida*. At first only a few leaves were visible but, under the leaf litter between some rocks, a few flowers were noticed. At this spot, the little helmets hadn't been seen since the bushfires some years ago. As we searched more carefully at the same level, some more small colonies were found. What a nice surprise to know they had recovered! Perhaps the more frequent rains had played a very helpful part for this species; and others too. During the morning, quite interesting fungi were also noted and photographed.

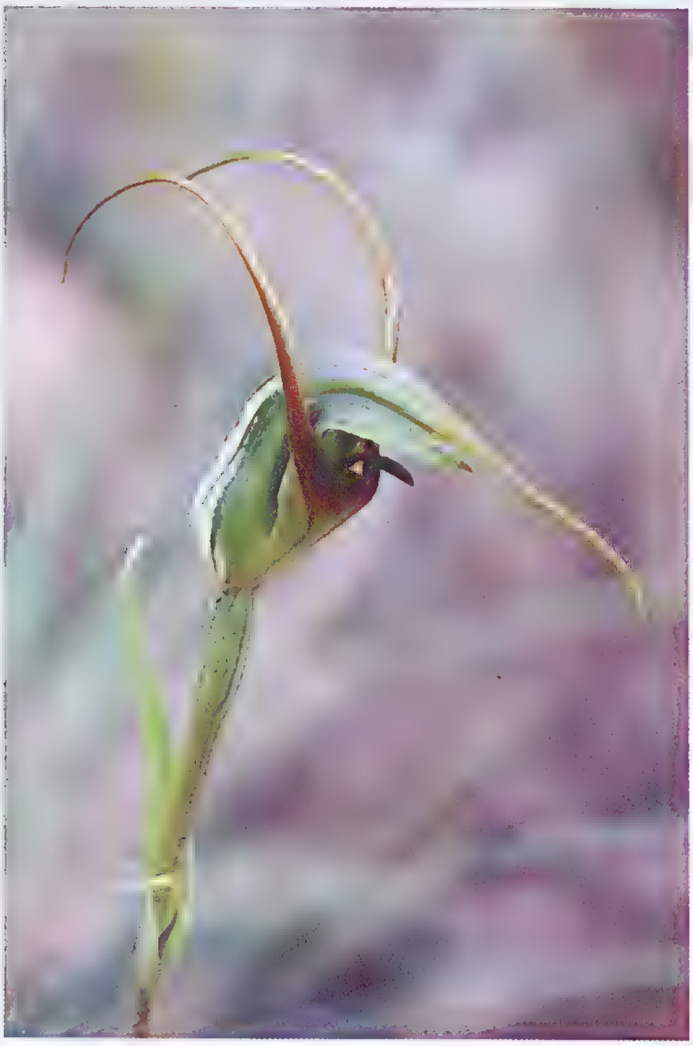
A Parks Vic officer who had been passing the site stopped and also enjoyed our enthusiasm. A picnic lunch followed, and then we moved down to Ballantine Gap. Colonies of *Diplodium*. sp. aff. *revolutum* in lovely groups of flowering plants kept photographers busy.



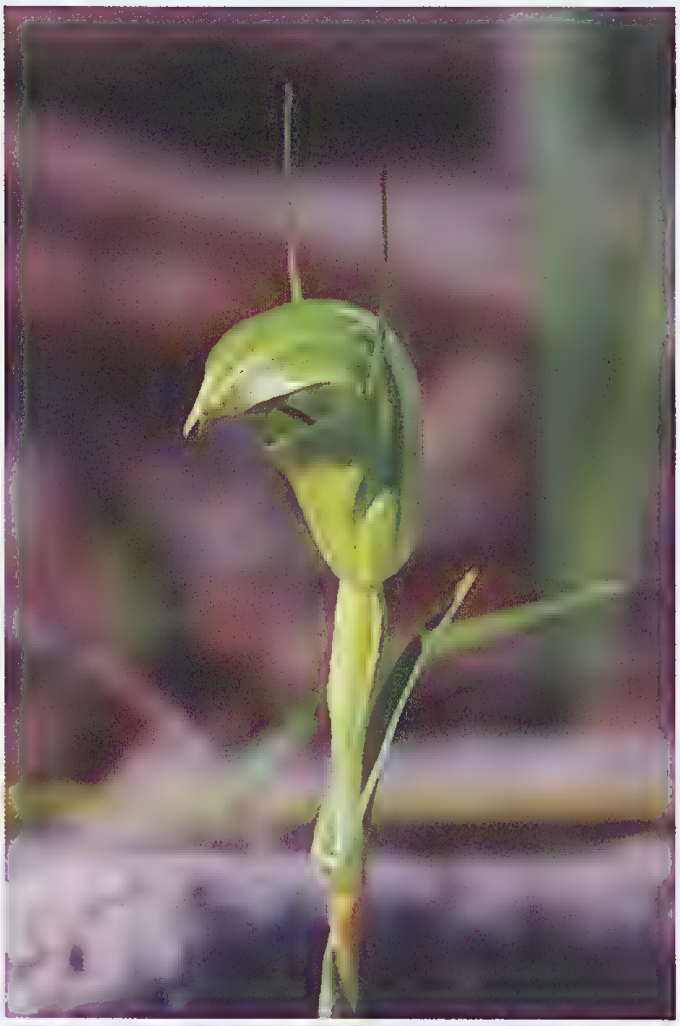
Z Acianthus exsertus



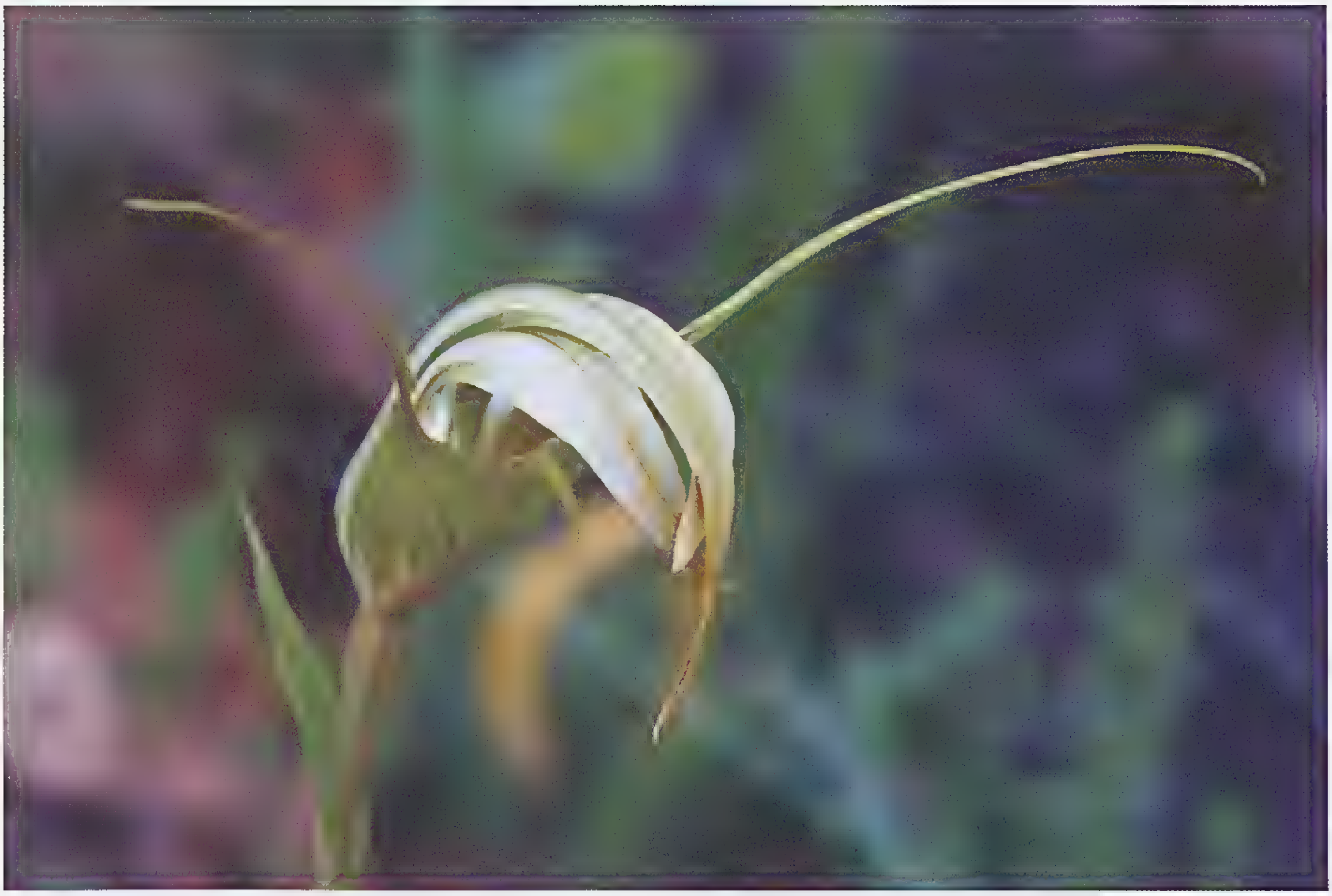
Corysanthes hispida



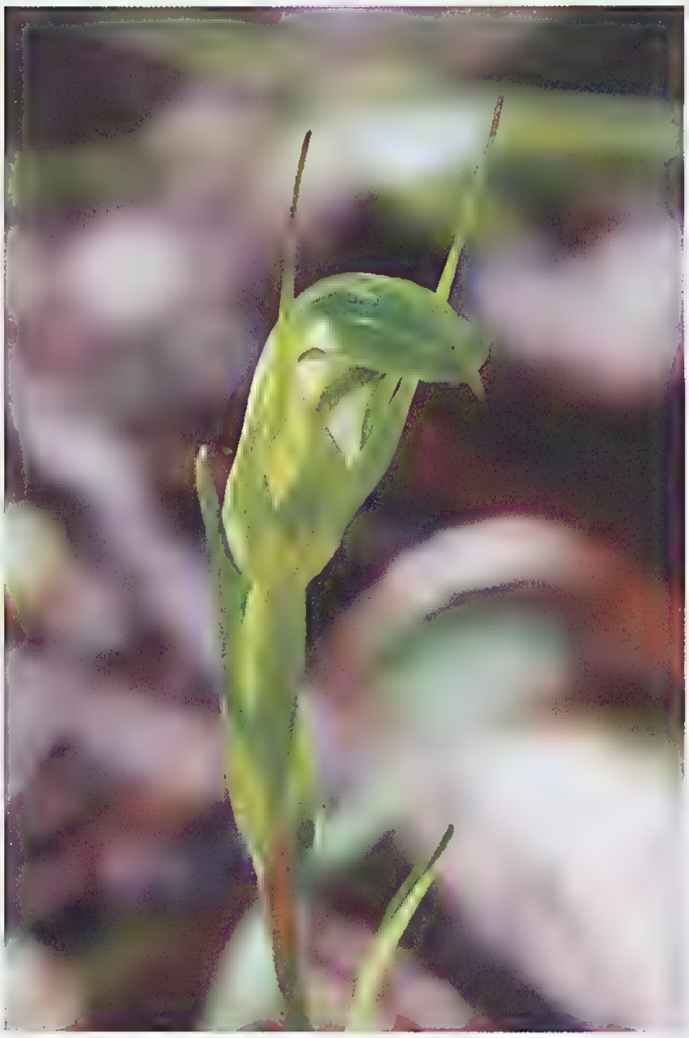
Diplodium laxum



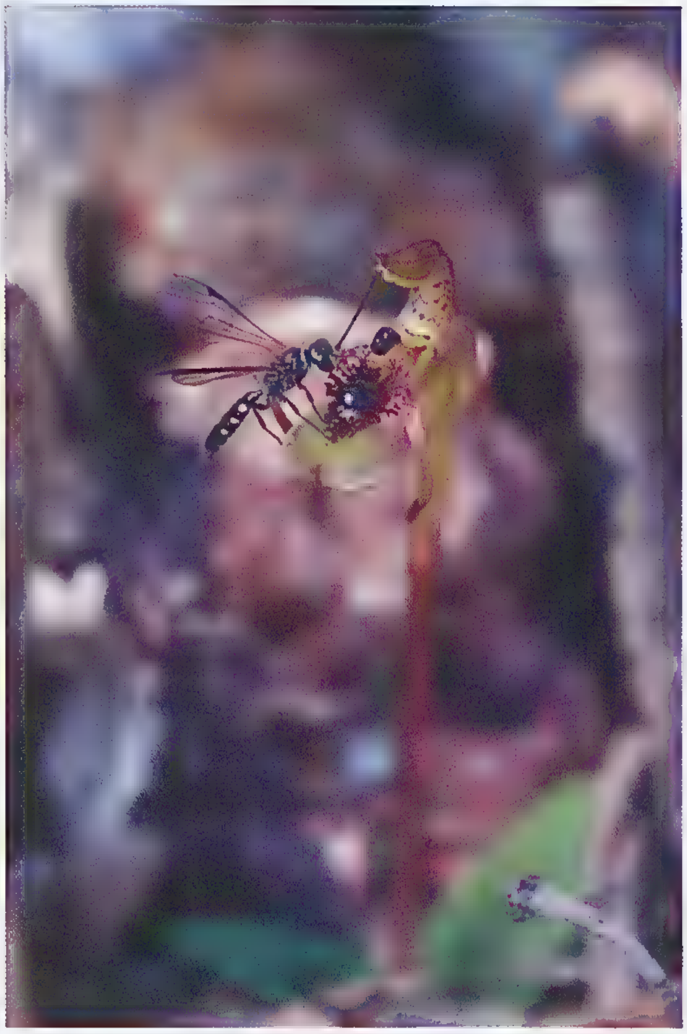
Diplodium sp. aff. alveatum



Diplodium sp. aff. *revolutum*



Diplodium sp. aff. *alveatum* (peloric)



Chiloglottis trilabra

Then we were all off, in a trail of dust, to the picturesque Little River Gorge Lookout. On arrival, a spotted quail thrush was observed in the undergrowth. Flame and scarlet robins, and many other birds, were also noted during our visit. We took a walk down to the lookout and spent some time marvelling at the formations and pondering the changes that, over time, have evolved in this gorge and its surrounds.

There was plenty to talk about around the campfire in the evening.

For the stayers, there was more orchiding on Monday morning. We gathered in Buchan with James, our local leader, before setting off towards *Diplodium* sp. aff. *revolutum*. *Diplodium* sp. aff. *alveatum*. *Chiloglottis trilabra*. *Diplodium* sp. aff. *alveatum* (peloric).

Orbost into the Snowy River National Park. Along the way, *Diplodium* sp. aff. *alveatum*, and a peloric form of this species (once given the name *Pterostylis crypta*) were viewed. There were also colonies of *Diplodium fischii* and *D.* sp. aff. *revolutum*. Some of these *D. fischii* plants were unusually tall, one being measured at 42cm from the ground to the flower head. Finally, an opportunity to see *Chiloglottis trilabra* pleased us all. This flower is difficult to differentiate from similar species, so we were fortunate this colony had been identified by Jeff Jeanes.

After a very nice morning with several short walks, one being to quite a high spot where lots of butterflies fluttered about us, we moved down to picnic at the junction of the Snowy and Buchan Rivers. A goanna quietly kept an eye on us from a tree next to our eating spot. Many birds, butterflies, dragonflies and other small creatures frequent this area, and we noted foxes, dingos and wombats were certainly also living here. Before leaving to go our various ways home, we took a short walk to the river edge to take in a little more of this beautiful part of East Gippsland.

Our special thanks to Bill and Helen Kosky for their preparation, informative guidance and patience with our large group on this Easter trip.

Margaret Margitta.
Photographs are by Paul Piko

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The Kempsey Speciosum Spectacular and Australasian species and hybrid show 2009

The show this year was once again excellent this year was a great year for Australian natives the only problem was that the heat got to some before the judges did but the display of orchids was still spectacular. The hybrid section of the show became larger this year and I think that we will see it grow each and every year.

This year the champions were *Dendrobium speciosum* 'Palmaston Mist Ted' AM/ANOS as the grand champion and was owned by Ted and Winsome Walmsley. Reserve champion was *Dendrobium. speciosum*. 'National White' x 'Daylight moon' owned by John Zietsch John almost didn't bring this plant to the show lucky he did. Champion hybrid was *Dendrobium* Delicatum 'Big Red' owned by Don Crukshank what an excellent display this plant was. Reserve champion hybrid went to Ted and Winsome Walmsley with a beautiful peachy coloured orchid *Dendrobium* Barry Simpson. Champion species was Dendrobium. Tetragonum owned by Brian Gerhard [DUNO]. Champion speciosum seedling was *Dendrobium Speciosum*. ('Blew moon' x 'Daylight moon') owned by Ted and Winsome Walmsley. The Colin Brandon trophy went to Ted and Winsome Walmsley with *Dendrobium* Barry Simpson. The most travelled orchid was owned by Brian Gerhard [DUNO]. Junior champion was *Dendrobium falcorostrum* owned by Callyn Farrell.

The presentation dinner was very impressive this year with a crowd of around ninety people. This year the support of the orchid community was great we had exhibitors from the central coast, Newcastle, Greta and of course the Mid North Coast.

DENDROBIUM SPECIOSUM SPECTACULAR

& AUSTRALIAN ORCHID SPECIES AND HYBRID SHOW 2010

Kempsey, NSW

(Ted & Winsome Walmsley and ANOS Mid North Coast Group)

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Interstate entries are encouraged with a prize for the most travelled orchid.

Dates: **Fri 3rd Sept 10am to 4pm**
Sat 4th Sept 9am to 4pm [Closed for judging b/w 11am and 12noon on Sat 4th]
Sun 5th Sept 9am to 4pm

Location: **57 Spooners Ave., Greenhills via Kempsey.**

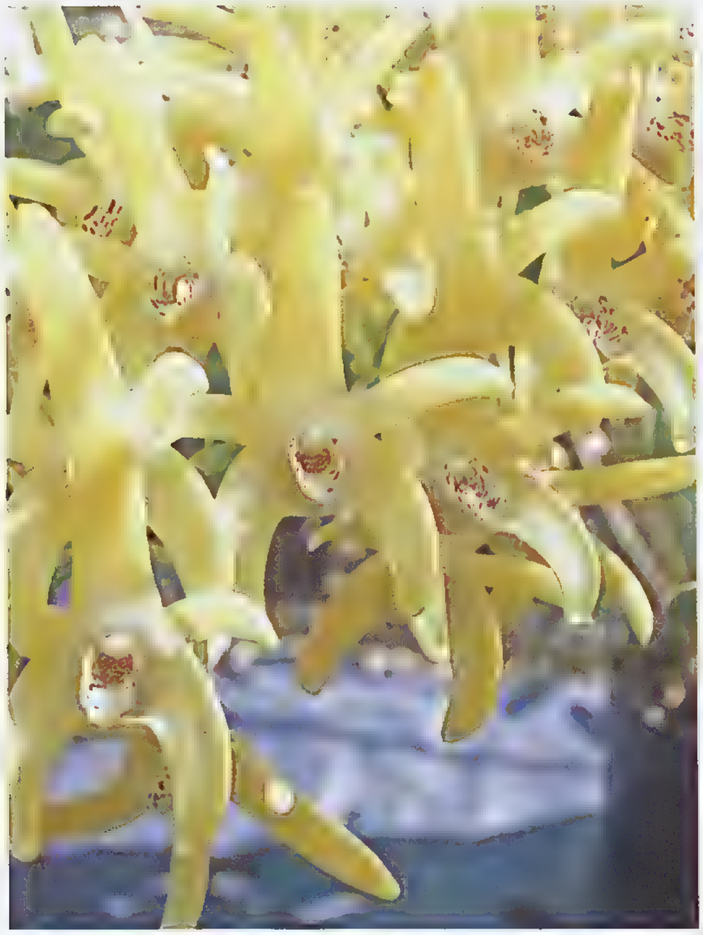
Details: **Electronic copy of brochure with locality map, show schedule and associated events available by e-mailing John Zietsch at: jzi01935@bigpond.net.au**
OR contact Ted Walmsley on (02) 6562-7150 or Lloyd Edwards on (02) 6556-9766.

I would like to thank the Walmsley family for their help and support of this show and of course the sponsors Phil Ritchie, Earth to Joy Native Orchid Nursery, Kempsey Heights Bowling Club, Hastings Valley Dairy, ANOS Mid North Coast Group and Warren and Caroline Simpson without the continual support of these sponsors the show would not be what it is every single year.

I recommend travelling to the spectacular next year this is one of the best native displays in Australia and if you have not visited you don't know what you're missing out on. See you next year at the show!

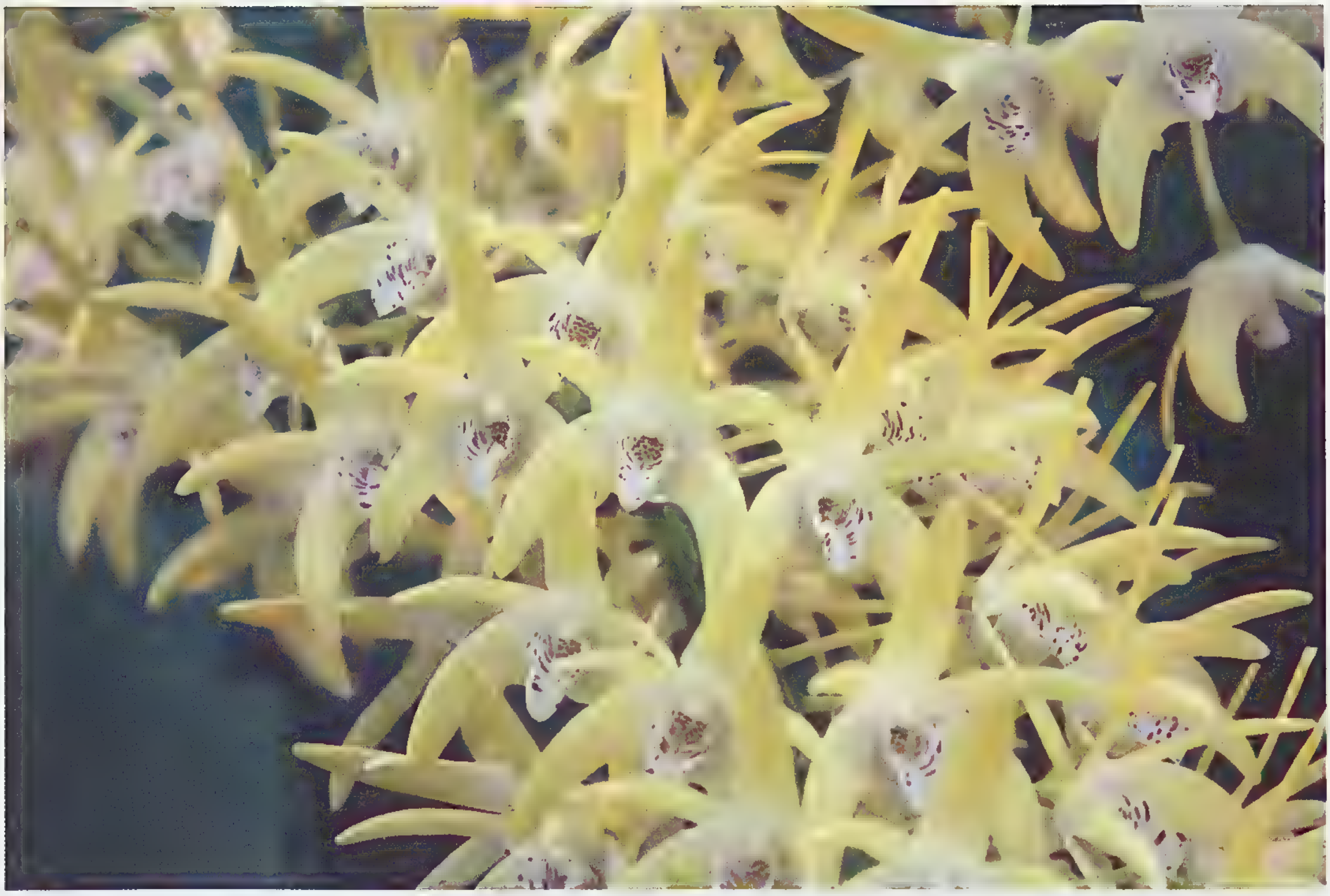
By Callyn Farrell
Email: youngmel@optusnet.com
ANOS Newcastle group

Dendrobium Speciosum ('Bee Creek' x 'Daylight Moon') owner Y. Ferris
Photo by Callyn Farrell



Champion seedling, *Dendrobium. Speciosum*. ('National White' x 'Daylight Moon') ,owner John Zietsch
Photo by Callyn Farrell

Champion Hybrid
Den. Delicatum 'Big Red' HCC/ACM NSW/AOC 2009
Photo by Ian Chalmers



Grand champion speciosum
Dendrobium Speciosum “Palmaston Mist Ted” AM NSW/AOC 2009
Owner Ted and Winsome Walmsley
Photo by Ian Chalmers

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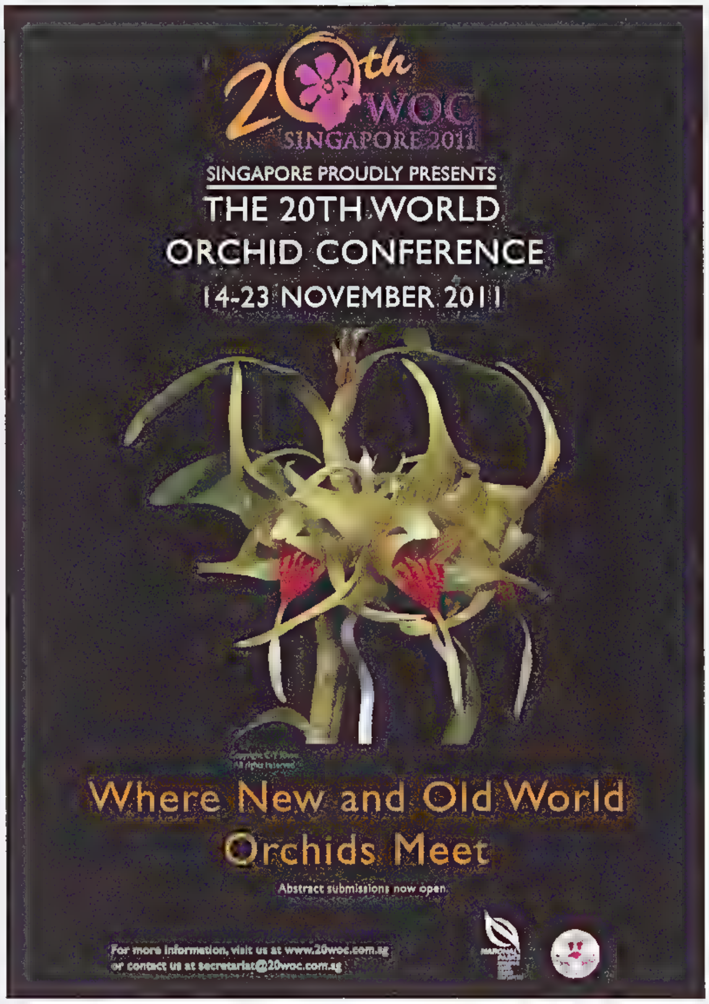

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Climate Change and South Australian wild orchids. R. Bates

Introduction:

The effect of climate change on South Australian orchids has been discussed and written about since the 1980's (Bates 1988). 'Man made' climate change began with the Industrial Revolution two hundred years ago when an increased amount of carbon dioxide, methane and other industrial greenhouse gases began to enter the earth's atmosphere. At about the same time in Australia our native forests began to be cleared at an alarming rate, replaced by a thin cover of pasture and crop species much of which stopped taking in carbon dioxide completely over summer. Soon afterwards the destruction of rainforests around the world increased. Oxygen production and carbon dioxide absorption by rainforest trees therefore fell dramatically and the percentage of carbon dioxide in the atmosphere began an ever accelerating increase. Human population too increased exponentially while the population of wild creatures decreased at a faster rate, the vegetation cover of the earth declined.

Desertification due to man's activities begun 4000 years earlier continued to increase. Pollution, higher temperatures and increased acidity of the oceans saw decreasing biomass there too. Humans demanded ever more fuels to improve travel and home comforts while material wealth increased.

Early NOSSA observations:

In the early 1980's NOSSA members began to notice that average cool season rainfall in southern South Australia and southern parts of WA was decreasing. Could this have been due to rising temperatures caused by the Greenhouse effect?

NOSSA certainly thought so and if this was the case all our orchid species were under threat because of it. It was a case of double jeopardy: if loss of habitat didn't wipe out the orchids its effect on climate would.

It has taken nearly twenty years for the Australian Government to accept something that

NOSSA members accepted in the 1980's.

There is of course another double whammy. Higher temperatures mean not only lower

rainfall but also increased evaporation. Orchids may not cope with both.

Why Climate drying may wipe out most South Australian native orchids:

South Australia is the driest, flattest of the Australian states with the highest percentage of habitat loss occurring in the orchid rich southern parts.

Orchids were already at the limits of drought tolerance before climate drying began.

There is simply nowhere for orchids to move as higher temperatures and drier climate affect their survival..

They can not move southward into cooler, damper climes because of ;

A: the island effect, whereby all surviving populations are restricted to islands of native vegetation and are unable to cross farmland.

B: soil types toward the coast are different from those inland and each orchid species has evolved to require a particular soil type.

Orchids cannot move to higher altitudes because the greater area of SA where they grow is broad plain and where there are mountains the higher parts tend to be of very small areas with skeletal soils. In the meantime loss of climate-sensitive orchid pollinators and native mammals to recycle leaf litter and open up dense bush, an ever growing pestilence of smothering feral weeds and animals and degenerating soil structure and microflora are wiping out remaining orchid populations.

Today: Bureau of Meteorology records for South Australia show that there has been a trend toward increasingly dry growing seasons in South Australia since the 1950's and at the same time increasing temperatures and lower humidity leading to increased evaporation. We in Adelaide are under threat of level four water restrictions this summer, with most of the state experiencing drought, now extending into a fourth year for many districts. The six months to March 2008 in South Australia has been the driest 6 month period on record, 2006 was the driest year on record in the orchid rich districts and the first 6 months of 2005 was the driest start to any year on record. What chance our orchids?

What we at NOSSA have observed in the last twenty years:

During the last three years it has been noted that the pastoral areas of the state have had an almost complete failure in orchid flowering and one suspects that whole populations have disappeared for no other reason than the hot dry weather. Elsewhere in the wheat belt the last two seasons have been extremely poor and late spring flowering orchid species failed completely. How many years of this before extinction of all but the commonest species occurs?

Likely effects on orchids

1: the orchid growing season is now shorter by an average of two weeks compared to the 1950's. In 2005 the season did not break until June even in the Adelaide Hills, in the past the season break occurred in April-May. On the plains in 2006 and 2007 the season was over for many orchids at the beginning of September.

2: most species now flower 1-2 weeks earlier. In 2007 *Arachnorchis leptochila* was found in flower at Cox Scrub CP at the end of August yet old trip reports in the NOSSA journal show that in the 1970's we had excursions to see this species in early November. *Note however that August 2008 was so cold that orchids flowered weeks later than usual.

Those species which seem unable to flower earlier simply abort their flowers due to drought or heat before their preferred flowering time.

3: orchids such as the delicate helmet orchids *Corysanthes* which can only grow in cool humid conditions now have such a short growing season that they often can not complete their life cycle. In 2007 for example most flowers were destroyed by temperatures of 30 degrees and low humidity in August within a few days of the flowers opening and in some cases before they opened.

Where spring flowered orchids have survived to flower the plants have been shorter, with smaller flowers, decreased pollination rates and more intense loss to grazing and thrip damage. Much of this has been written up in our NOSSA journal.

On the most recent NOSSA excursion to Wellington on our cool south coast on Sept 9th 2007 all orchid leaves were dead at the time of our visit and most flowers of most genera had aborted. We could only imagine what it must have been like inland.

In 2006 for the first time since the formation of the society planned field trips have been cancelled due to drought. Winter flowered species other than helmet orchids have done better because evaporation rates are still low and dews help plants survive the decreased rainfall.

Conservation ratings:
I have this September revised the conservation ratings of any species which have failed to appear in any numbers in the last two orchid seasons. Several species not previously threatened are now obviously in short term danger and most must be threatened in the long term of 50-100years.
Reference: Bates R. (1988) 'The Greenhouse effect and the future of South Australian orchids' J. *Native Orchid Society of South Australia,* vol, 12 number 9.

R Bates

First published in NOSSA Bulletin

SHOW DATES FOR 2010

ANOS Melbourne Suburbs Group
Australasian Native Orchids Spring Show
Lilydale Lake Community Rooms, Lilydale, 3140 Victoria
Times: Saturday 2nd October
10 am - 4.30 pm
Sunday 3rd October
9.30 am - 4.00 pm
Contact Tel: 03 9802 0654
More Details:
http://www.anosvic.org.au/ANOS_MelbSub_Home.html

The Far North Coast ANOS
Spring Show
Balina RSL Club
Times: Friday 37th August
9.00am - 7.00 pm
Sunday 29th August
9.00am - 3.00 pm

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A new species of Oligochaetochilus (Orchidaceae) from Queensland with affinities to *O. woollsii.*

David L. Jones
Kalaru, NSW, 2550, Australia.

Abstract

Oligochaetochilus mystacinus, a new species with affinities to *O. woollsii* is described from Queensland.

Key Words

Orchidaceae, *Oligochaetochilus mystacinus, O. woollsii,* new species, vulnerable, Australian flora, Queensland.

Introduction

In this paper, the second dealing with *Oligochaetochilus* in Queensland (Jones 2010), a new species with similarities and affinities to *O. woollsii*, is described as new. I also take the opportunity to characterize that latter species which has unique and remarkable characters within the genus.

Materials and Methods

The description of the new taxon was made from fresh and dried specimens. Dried specimens of *Oligochaetochilus* species were examined from the following herbaria: AD, BRI, CANB, HO, MEL, NSW and PERTH. Unless otherwise indicated, all types of related *Oligochaetochilus* taxa (or photographs thereof) have been examined.

Taxonomy

1. Oligochaetochilus woollsii (Fitzg.) D.L.Szlachetko, *Polish Bot. J.* 46(1): 24 (2001)

Pterostylis woollsii Fitzg., *Austral. orch.* 1(2): t.8 (1876).

Type: Australia: Richmond, New South Wales, *Woolls s.n.* (lecto; BM, *fide* Clements 1989, photo!).

Illustrations: Plate 338, Nicholls (1969); page 319, Backhouse & Jeanes (1995); plate 192, Bishop (1996); page 130, Jeanes & Backhouse (2006) - all as *Pterostylis woollsii*; page 327, Jones (2006), as *Oligochaetochilus woollsii*.

Description: Tuberous, terrestrial herb. *Tubers* oblate, c. 15-20 mm diam. *Leaves* sessile, 5-10 in a radical rosette, imbricate, often withered at anthesis; lamina oblong to oblong-elliptical or oblong-obovate, 15-40 mm long, 8-20 mm wide, dull green; margins entire; apex subacute to apiculate. *Inflorescence* 20-45 cm tall; scape 2-3 mm diam.; sterile bracts 4-6, ovate-lanceolate, 25-35 mm long, 7-10 mm wide, acuminate, closely sheathing, usually chartaceous by anthesis. *Floral bracts* ovate-lanceolate, 10-30 mm long, 6-12 mm wide, acuminate, closely sheathing. *Pedicels* 15-60 mm long, slender, straight or slightly curved. *Ovary* narrowly obovoid, 8-10 mm long, 2-3 mm wide, greenish brown. *Flowers* 1-6, porrect to semi-erect, 30-40 mm long including the point on the dorsal sepal; galea and lateral sepals chequered, translucent white with green and brownish lines and tonings; petals transparent with dark red-brown lines; galea sloping at the base, curved medially, sloping to the apex; petal flanges absent and not closing off the base of the galea; anterior petal margins broadly flared. *Dorsal sepal* 18-20 mm long, cucullate, obliquely erect, decurved in distal quarter; apical point obliquely erect to erect, 15-20 mm long, filamentous, acuminate. *Lateral sepals* deflexed, reflexed back towards the ovary but not touching; conjoined part broadly obovate when flattened, 12-14 mm long, 12-14 mm wide, broader than the galea, shallowly to moderately deeply concave; margins strongly incurved, ciliate; sinus relatively broad; free points long filiform, filamentous, 9-13 cm long, narrowly divergent, dangling. *Petals* assymetrically ovate-lanceolate, 18-22 mm long, 7-8.5

mm wide, strongly falcate, narrowed in the proximal quarter to a stalk-like base; dorsal margin thickened, brown, glabrous or with a few sparse, short cilia; proximal flange absent. *Labellum* highly irritable, attached by a green, ligulate basal claw c. 3.5 mm long, c. 2.5 mm wide; lamina fully exposed in the set position, elliptic to obovate, 10-11 mm long, 3-4 mm wide, dark red-brown; ventral surface shallowly concave to broadly grooved; basal lobe prominent, c. 3.5 mm long, thin, erect in the set position and slotting in to the base of the galea when triggered; apex shortly rostrate when viewed from above, appearing cymbiform from the side; marginal setae 8-10 pairs, white, moniliform, the longest pair c. 3 mm long, numerous fine cilia between these setae extending to the labellum apex; basal lobe with a single projecting pair of setae near its junction with the lamina, c. 3 mm long, a tuft of shorter cilia at the apex; abaxial surface with a narrow central channel extending from the basal lobe to the apex. *Column* porrect from the end of the ovary, 15-17 mm long, c. 4 mm wide; column wings c. 4 mm long, c. 2.5 mm wide, more or less rectangular; upper lobe terete, c. 0.4 mm long; basal lobe ovate, ciliate; barrier trichomes moniliform, exserted. *Stigma* narrowly elliptic, c. 11 mm long, c. 2 mm wide, the upper margins slightly irregular. Anther c. 2 mm long, obtuse. *Pollinia* linear-oblong to clavate, c. 2 mm long, yellow, mealy. *Capsules* not seen. **Fig. 1.**

Distribution and ecology: Queensland, New South Wales and Victoria (where known from a single locality). Although widely distributed and extending from the Carnarvon Gorge in central-eastern Queensland to near Rushworth in north-central Victoria, this species has a scattered and highly localized distribution. It is most prominent in hilly country often growing on the upper slopes and ridge tops in drier types of eucalypt forest, but also occasionally on flatter sites. In central-western NSW it often grows in soils derived from sandstone and shale, whereas in northern New South Wales and Queensland it is most usually seen among granite boulders. In Victoria it grows in relatively flat sites in patches of mallee eucalypt and box woodland (Jeanes & Backhouse 2006). This species always favours well-drained soils, including clay loams, shallow sandy loam and gravelly loam. In Queensland it is sometimes found growing in the crevices between flat or sloping sheets of granite. It is mostly an orchid of localities well inland from the coast, but Bishop (1996) notes the existence of an old near-coastal record from Richmond, near Sydney, and also details a small isolated population with greenish flowers growing on moist sandy flats in coastal scrub on the far North Coast of New South Wales. Alt. 20-900m. Flowering October to December.

Similar species: *Oligochaetochilus woollsii* is a very distinct species not readily confused with any other. The new species described below shares some significant features including the filamentous tail-like free points on the lateral sepals and the elongated basal lobe on the labellum. The differences between the two are detailed in the description of the new species, but the dangling free points on the lateral sepals of *O. woollsii* are unique within the genus.

Notes: This species belongs in section *Longicaudis* D.L.Jones & M.A.Clem. (Jones & Clements 2002). This section is characterized by long filamentous free points on the lateral sepals, a thin-textured labellum lamina with entire margins and short marginal setae, and an elongated basal lobe with a pair of projecting setae.

Vernacular: Long-tail Greenhood, Long-tailed Rustyhood.

Conservation status: In Victoria this species is regarded as being highly endangered, the population consisting of fewer than 100 plants in a limited area (Jeanes & Backhouse 2006). Populations in Queensland and New South Wales are less threatened but because they are generally scattered, isolated and often small, I suggest the species should be considered as vulnerable.

Etymology: Named after the Reverend William Woolls (1814-1893), teacher, journalist, clergyman and botanist; Woolls, who wrote numerous papers on botanical subjects, was interested in a wide range of plants, including eucalypts, orchids and ferns.

2. *Oligochaetochilus mystacinus* D.L.Jones, ***sp. nov.***; affinis *O. woollsii* (Fitzg.) Szlach., sed foliis rosulis minore; scapo angustiore; sepalis punctis filiformibus brevioribus; sepalis lateralibus parte connata planiore; punctis liberis anomalis; labello leviter breviore, lobo basali breviore multo tumidiore; labello apice late obtuso; ciliis marginalibus multo brevioribus, differt.

Type: Queensland. Mount Moffat, 26 Oct. 1996, *R.Crane 1684* (holo CANB; iso BRI).

Description: *Tubers* oblate, c. 10-15 mm diam. *Leaves* sessile, 4-8 in a radical rosette, imbricate, often withered at anthesis; lamina ovate to oblong-ovate, 15-30 mm long, 6-12 mm wide, dull green; margins entire; apex acute to apiculate. *Scape* 20-35 cm tall, 1.5-2 mm diam., 1-6-flowered. *Sterile bracts* 3-5, closely sheathing, oblong-obovate, 18-25 mm long, 4-6 mm wide, acuminate, usually chartaceous at anthesis. *Floral bracts* closely sheathing, oblong-lanceolate, 15-25 mm long, 4-6 mm wide, acuminate. *Pedicels* 25-35 mm long, slender, straight or slightly curved. *Ovary* narrowly obovoid, 8-10 mm long, 2-3 mm wide, greenish brown. *Flowers* porrect to semi-erect; galea and lateral sepals chequered, translucent white with brownish lines and tonings; petals transparent with dark red-brown lines. *Galea* sloping at the base, curved medially, sloping to the apex; petal flanges much reduced and not closing off the base of the galea; anterior petal margins broadly flared. *Dorsal sepal* 24-30 mm long including the apical point, cucullate, obliquely erect, decurved in the distal quarter; apical point filamentous, obliquely erect to erect, 8-12 mm long, acuminate. *Lateral sepals* deflexed, slightly reflexed back towards the ovary; conjoined part slightly wider than the galea, shallowly concave, broadly ovate when flattened, 12-14 mm long, 12-14 mm wide; margins slightly incurved, sparsely ciliate to glabrous; sinus broad; free points long, filiform, filamentous, 3-4 cm long, widely divergent and often curling upwards towards the tips. *Petals* asymmetrically ovate-lanceolate, 18-20 mm long, 5-8 mm wide, strongly falcate, narrowed in the proximal third to a stalk-like base; dorsal margin thickened, brown, glabrous; proximal flange much reduced. *Labellum* highly irritable, attached by a green, ligulate basal claw c. 3.5 mm long, c. 3 mm wide. *Lamina* elliptic to obovate, 7-9 mm long, 3-4 mm wide, dark red-brown; adaxial surface broadly concave; abaxial surface with a narrow central channel extending from the basal lobe to the apex; basal lobe prominent, c. 2.5 mm long, narrower than the lamina but very thick, erect in the set position and slotting in to the base of the galea when triggered, with a single projecting pair of setae c. 3.5 mm long near its junction with the lamina, a tuft of short cilia at the apex; apex broadly obtuse. *Labellum marginal setae* obliquely erect to spreading, 6-10 pairs, moniliform, white, the longest pair c. 1.5 mm long, numerous short cilia between these setae and extending to the labellum apex. *Column* porrect from the end of the ovary, 15-17 mm long, c. 3.5 mm wide. *Column wings* c. 4 mm long, c. 2.5 mm wide, more or less rectangular; upper lobe c. 0.5 mm long; basal lobe c. 1 mm long, ciliate; barrier trichomes exserted, irregularly moniliform. *Anther* c. 2 mm long, obtuse. *Pollinia* linear-oblong to clavate,

c. 2.3 mm long, yellow, mealy. *Stigma* narrowly elliptic, c. 9 mm long, c. 2.5 mm wide, the upper margins slightly irregular. *Capsules* not seen. **Fig. 2.**

Distribution and ecology: Restricted to the Carnarvon Range and Mt Moffat in central Queensland. Grows among rocks on rocky slopes and ridges in sparse stunted woodland and shrubland, and in crevices in rock shelves and shallow soil over rock plates. Soils are well-drained sands that become moist to wet for short periods after rain. Alt. c. 500-700m. Flowering: October and November.

Similar species: *Oligochaetochilus mystacinus* has apparent affinities with *O. woollsii* but is readily distinguished by the widely divergent free points on the lateral sepals that often curl up towards the apex (in the manner of some moustaches). By contrast those of *O. woollsii* are narrowly divergent or dangle close together. In contrast with the new species, *O. woollsii* has broader rosette leaves, a thicker scape, longer filiform points on the sepals (9-13 cm long cf. 3-4 cm long), a concave rather than flat conjoined part of the lateral sepals, and a slightly longer labellum with a longer thinner basal lobe, a narrower apex and longer marginal cilia.

Notes: This species, which belongs in section *Longicaudis* D.L.Jones & M.A.Clem. (Jones & Clements 2002), was discovered by the late Ralph Crane during field studies supported by funds from the Australian Orchid Foundation.

Vernacular: Ralph Crane used the tag name of Moustache Orchid; I suggest Moustache Rustyhood.

Conservation status: Of restricted distribution but conserved in National Parks; suggest 2VC by the criteria of Briggs & Leigh (1996).

Etymology: Derived from the Greek, *mystakion*, moustache, in reference to the free points of the lateral sepals which resemble a handlebar-moustache.

Acknowledgements

Special thanks to the late Ralph Crane for bringing this species to my attention and Jean Egan for meticulously preparing my drawings for publication. I also thank Marion Garratt, Karina Richards and Emma Clifton for technical assistance and Mark Clements for discussions on the group. Tony Wood, Jean Egan and Barbara Jones commented on the manuscript. Laurie Adams provided the Latin diagnosis. The Directors of the following herbaria are acknowledged for allowing access to specimens: AD, BRI, CANB, MEL, NSW, PERTH.

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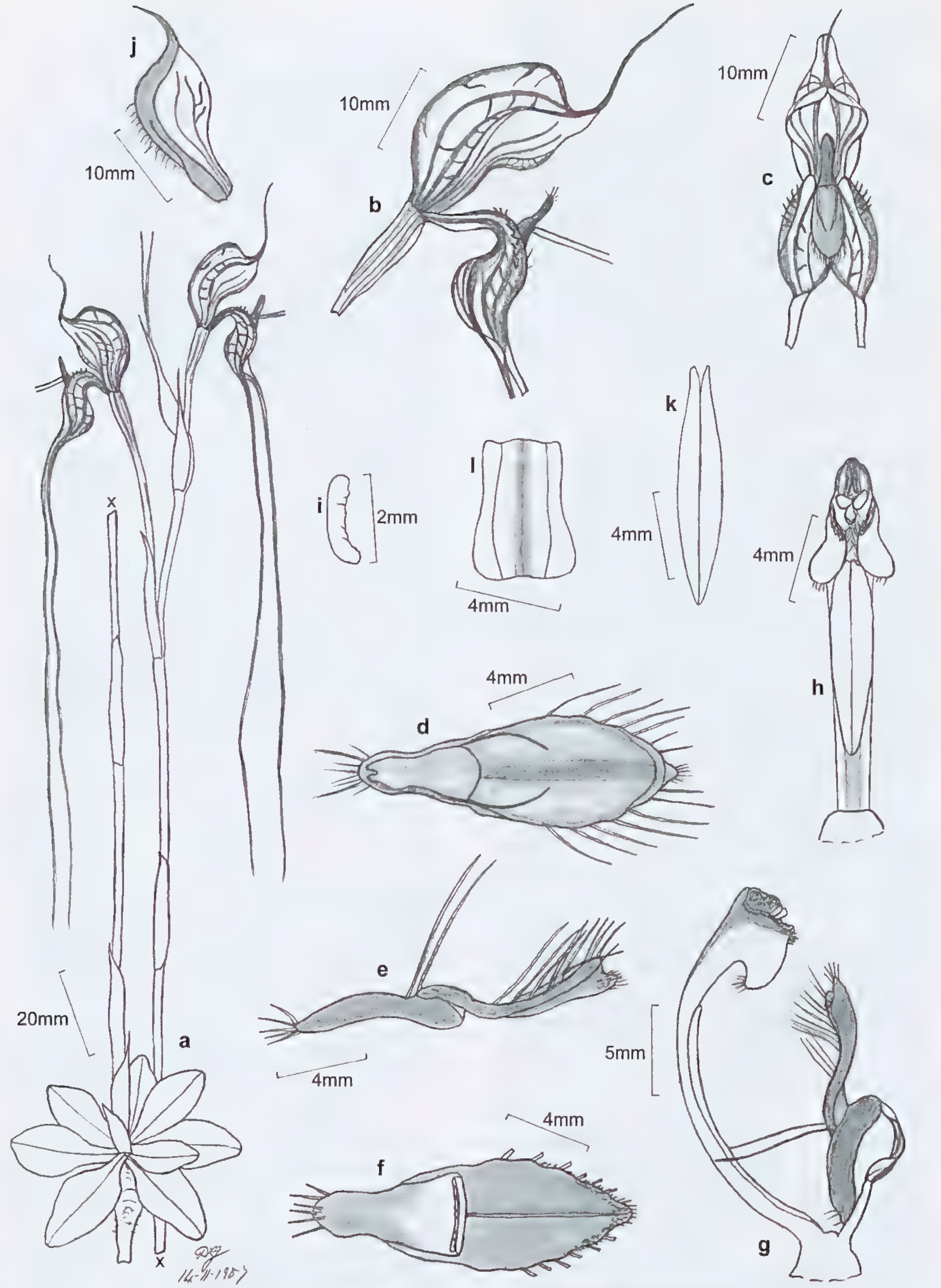

Fig. 1. *Oligochaetochilus woollsii*, Moonbi Range, NSW, *M.A.Clements*. a. flowering plant; b. flower from side (sepaline points removed); c. flower from front (sepaline points removed); d. labellum from above, flattened; e. labellum from side; f. labellum from below; g. column and labellum from side; h. column from front; i. pollinium; j. petal; k. stigma; l. labellum hinge.

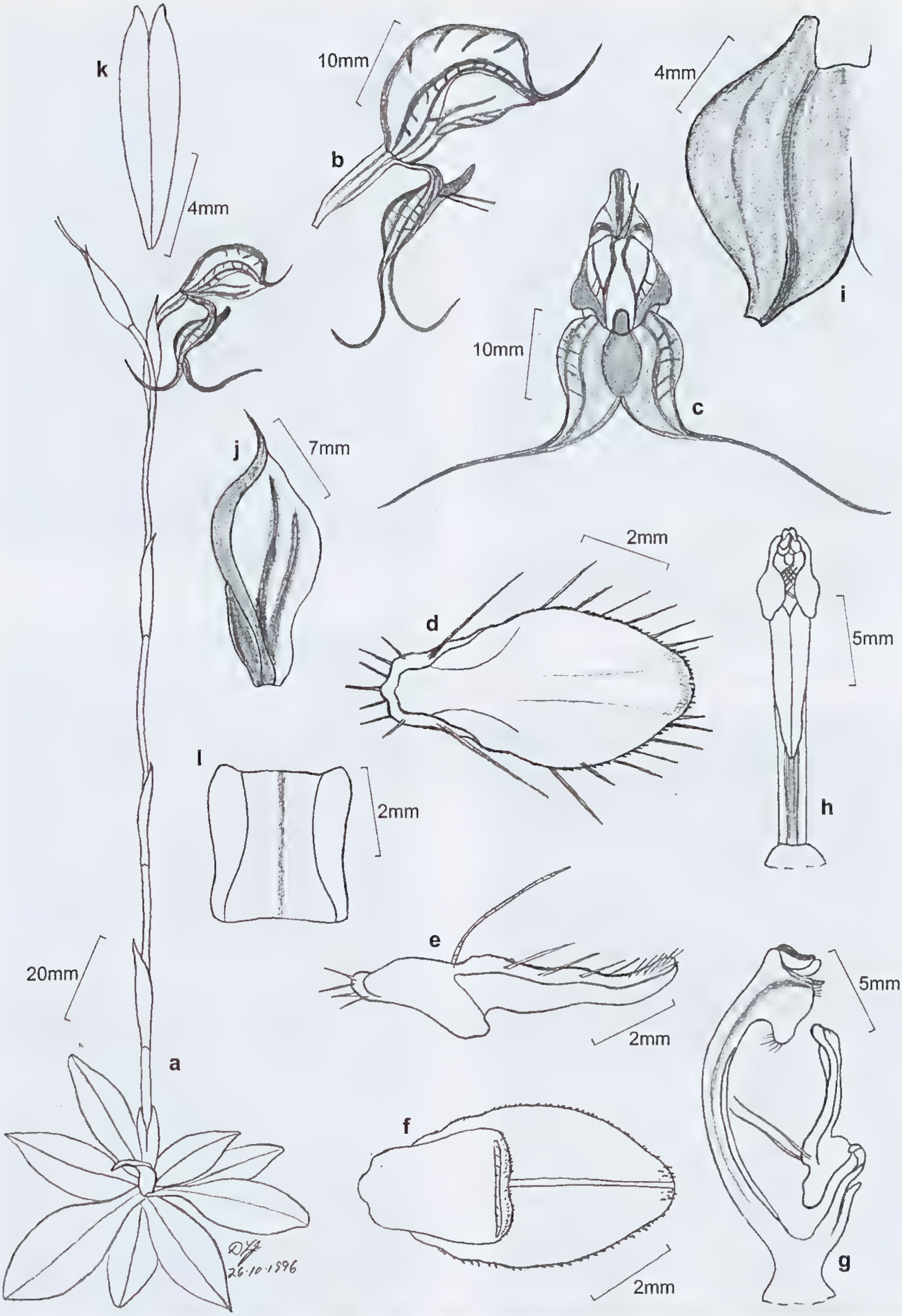

Fig. 2. *Oligochaetochilus mystacinus*, Mt Moffat, Qld, *R.Crane 1684* (drawn from the type). a. flowering plant; b. flower from side; c. flower from front; d. labellum from above, flattened; e. labellum from side; f. labellum from below; g. column and labellum from side; h. column from front; i. part of synsepalum, dorsal view; j. petal; k. stigma: l. labellum hinge.

Genoplesium baueri

I have just completed a submission to the Threatened Species Scientific Committee to have *Genoplesium baueri* listed as Critically Endangered under the Commonwealth *Environment Protection Biodiversity Conservation Act 1999.* It is currently listed as a Vulnerable Species under the NSW *Threatened Species Conservation Act 1995.* A submission to raise this status will also be written.

G. baueri is considered a monospecific orchid in that it is the only *Genoplesium* species, with all others once known as *Genoplesium* now listed as *Corunastylis.* The major difference is that *G. baueri* does not have paired tubers but a single perennial tuber-like growth which is not replaced annually, making plants virtually impossible to grow. It is also a self-pollinating saprophyte which makes its grip on life even more tenuous.

G. baueri

G. baueri is a highly localised species occurring in small areas of open forest, shrubby forest and heathy forest in well-drained sandy or gravelly soil at altitudes from 0-250m. Some small groups of one or two plants occur in small cleared areas of habitat. Such areas can be less than one square metre and clearing can be by natural means or simply the verge of a fire trail. *G. baueri* relies on the overall habitat and does not use or require a specifically associated (sympatric) species. *G. baueri* does not interbreed with any closely related species and no hybrids have been found. It is also endemic to NSW.

Plants have from 1-12 flowers but usually 3-5, with flowers appearing from mid-February to late March, depending on rainfall. The normal growth pattern is for plants to flower six weeks after good rain and although this has never been specified, I feel at least 20 mm – 25 mm in a 24 hour period is what I would call good rain, although one rainfall event should be followed by follow-up rain to maintain soil moisture.

My research into this species uncovered a total of 209 plants spread across 13 locations between Port Stephens and Ulladulla. Other known sites were surveyed for the submission but failed to produce any plants. Almost all plants are under threat from a development of some type and it came to my attention the lack of knowledge some authorities have of this orchid and even the fact it occurs on land controlled by those authorities. I expect *G. baueri* to be listed as the submission requests and the only concern is the length of time occurring before the nomination is formally recognised.

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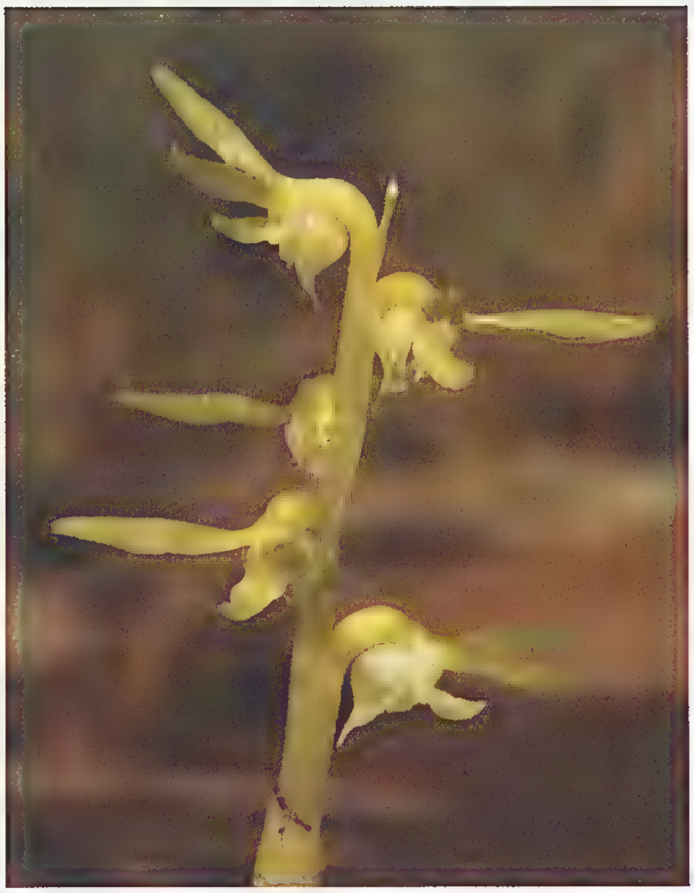
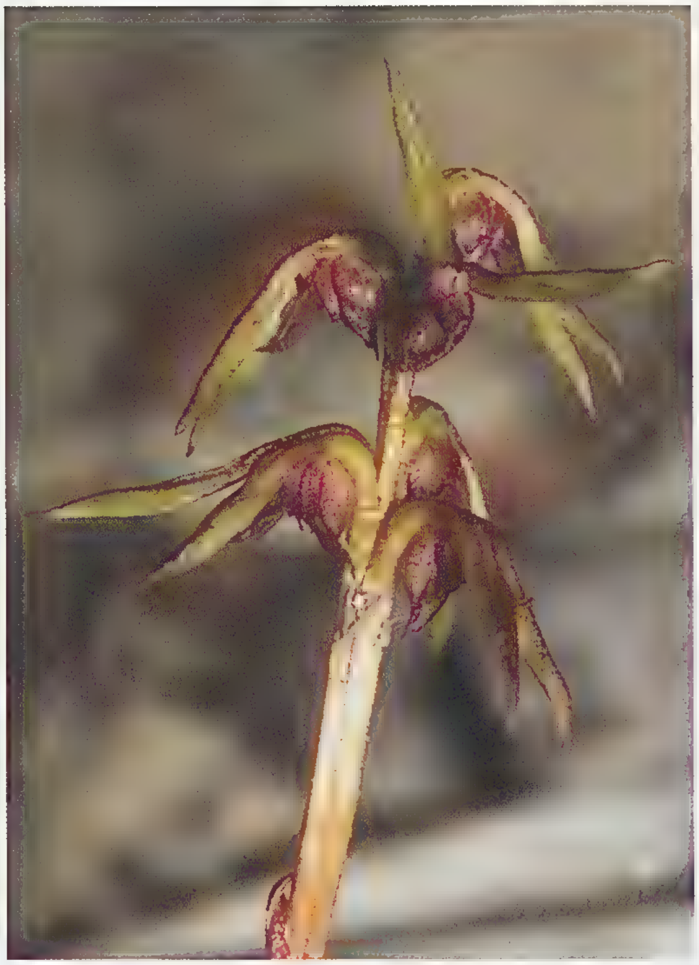
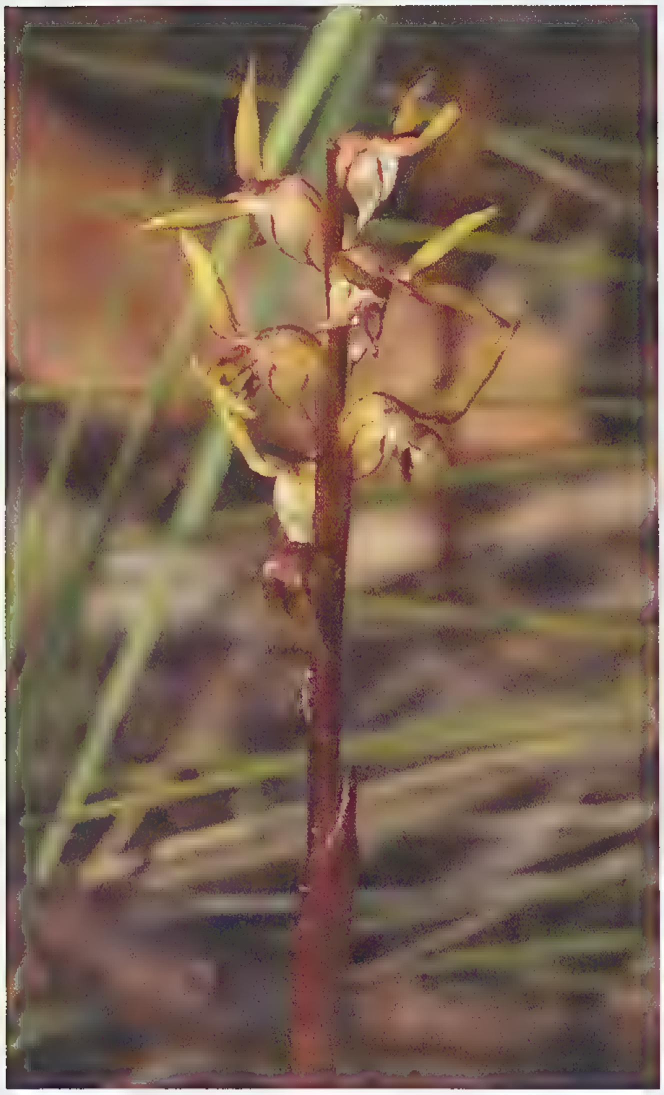


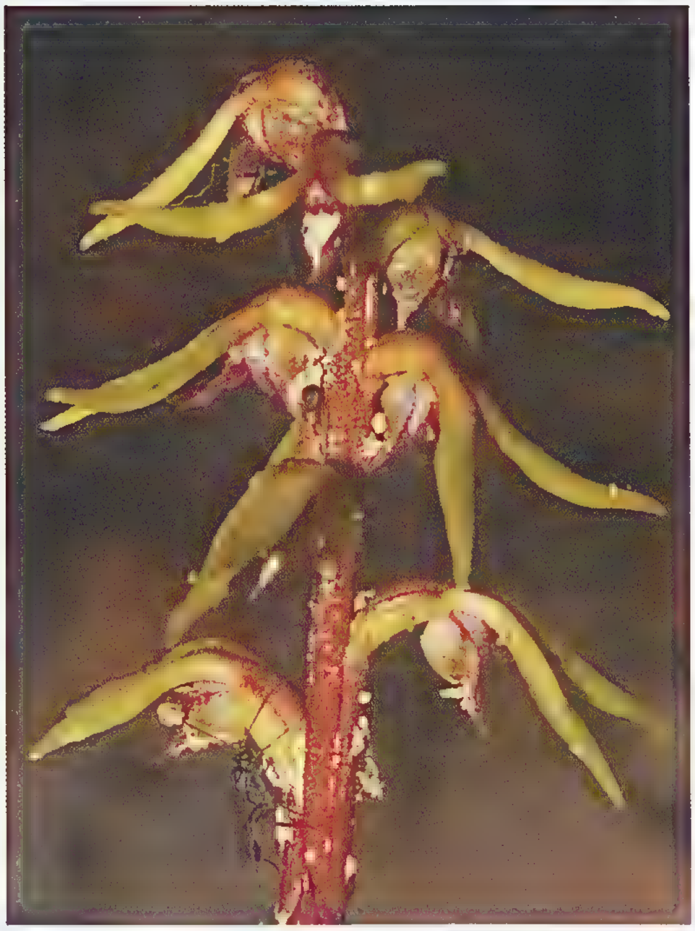
G. baueri alba



G. baueri



G. baueri



G. baueri 9 flowers

Speculantha vernalis

On 17-2-2010 this small multi-flowered terrestrial species became the latest addition to the growing list of orchids afforded protection under the Commonwealth *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act). The level of protection is high and it is listed as being Critically Endangered. This is due to three factors, the first being it is endemic to two areas west and south west of Nowra, on the NSW South Coast and secondly the population is estimated to be limited to between 450-500 plants. The final and potentially most worrying aspect is that the habitat and immediate area surrounding the largest section of the population, already contains a tertiary institution and is about to be subject to a residential development designed to contain 720 homes and 1800 residents.

The three main populations of approximately 450m plants are concentrated in an area of 53 hectares. Three smaller populations contain 20, 15 and six plants respectively, with one of those populations 14.2 km distant (in a straight line) from the main populations. This colony of 20 plants, prior to the determination, was the only population enjoying the formal protection of national park status and it measures about the size of a suburban house block.

The nomination submitted by David L Jones and Dr. Dean Rouse was lodged with the Threatened Species Scientific Committee (TSSC) in July 2006 and was not considered to be sufficiently significant to proceed further at the time. The nomination was then placed on a "Proposed Priority Action List" to be considered at a later date. My interpretation of that action would read "insufficient resources to undertake that function as might be expected under our charter of operations." More letters to the TSSC were written and I have copies of all four refusals for nomination. One would hope for a funding increase from a more environmentally sympathetic government if this important work is to be undertaken within a realistic time frame. However, a determination has now been realised and I wonder if the impending residential sub-division has actually been a motivator or was the nomination just the next one on the pile. The prospect of most of the orchid habitat being destroyed prior to a final determination is the stuff of nightmares.

Another potential threat was the impending construction of a gas fired power station, which in itself would not impact on the orchid but the widening of an existing power line easement to carry the extra load was seen as a threat. Fortunately an on-site meeting with the operators of the power station proved both orchid and habitat to be clear of the power line upgrade. At the time this upgrade was being planned the orchid was in no mans land, without status or protection and I shudder to think what could have happened if the power line upgrade would have an impact on the orchid habitat.

Following the inability of the TSSC to consider *S. vernalis* as an urgent matter Dr. Rouse contacted me and asked if I would prepare a nomination under the New South Wales *Threatened Species Conservation Act 1995* (TSC Act) as the state process is generally a more speedy outcome albeit without the weight of a national listing. This was done and lodged in May 2009 and that assessment is currently under consideration. A flurry of contact from the Department of Conservation and Climate Change (DECC) with me and others just before and after Christmas 2009, asking for clarification of several points in the submission and also the precise locations of plants on the tertiary site surprised me and I was at the time unaware of the TSSC activity as it proceeded to a final determination.

While conducting my annual conservation display at the Nowra Agricultural & Horticultural Show, I was approached by a local newspaper journalist who informed me of some mention of *S. vernalis* on a local radio news program. I approached the radio station and spoke to the news person who proceeded to interview me on the spot, asking for details about the orchid and its situation. The following day a talk show host at the same radio station also recorded an interview. Two days later the first interviewer contacted me to say his station has received a press release from the office of Peter Garrett indicating *S. vernalis* had been declared Critically Endangered under the EPBC Act. After waiting for almost four years *S. vernalis* had finally received the protection it deserved. I was made aware of the consternation its listing had caused within the Shoalhaven City Council (SCC) offices as a serious rethink will be necessary regarding the residential sub-division and possibly any expansion to the tertiary facility. I made the point that nothing less than a detailed survey of the habitat at and around these sites will be necessary if damage is to be avoided. My only hope is that a competent person is now employed to do the job and not one who will provide the SCC with a pre-determined result with which they will be pleased, as is often the case.

S. vernalis was first discovered by Leo and Edna Cady on 21-9-1958 and was from then until recently, saddled with the name of *Pterostylis* sp. aff. *parviflora* Flatrock Creek, a name I have considered almost an insult and it was not until a revision of *Pterostylis* by David L. Jones and Mark Clements was the name *Speculantha vernalis* used. It has taken a long time to emerge from the "too hard basket" and now joins 13 other species on the Shoalhaven list or rare and endangered orchids, six of which are only found in this area. This species grows among islands of *Kunzea ambigua* and *Leptospermum sejunctum* over sheets of sandstone and differs from others of its type in that it is spring flowering and the appearance of the rosette, which actually terminates the old tuber, with the inflorescence emerging from the top of the replacement tuber. In all other species of *Speculantha* the rosette emerges post flowering, borne on a lateral growth from the base of the flowering scape. *S. vernalis* is not a saprophyte but due to its preference for a special habitat type and the failure to find it in other similar habitats, its ability to survive in a pot could be described as extremely limited. The months ahead will be critical as the SCC is not known for its environmental ethic and no doubt will try to work its way around the determination, although I am aware the species received a determination despite objections from council and at least one local Member of Parliament, not known for possessing an environmental conscience.

With all of the above in mind, my original thought after hearing the result was "that makes my day."

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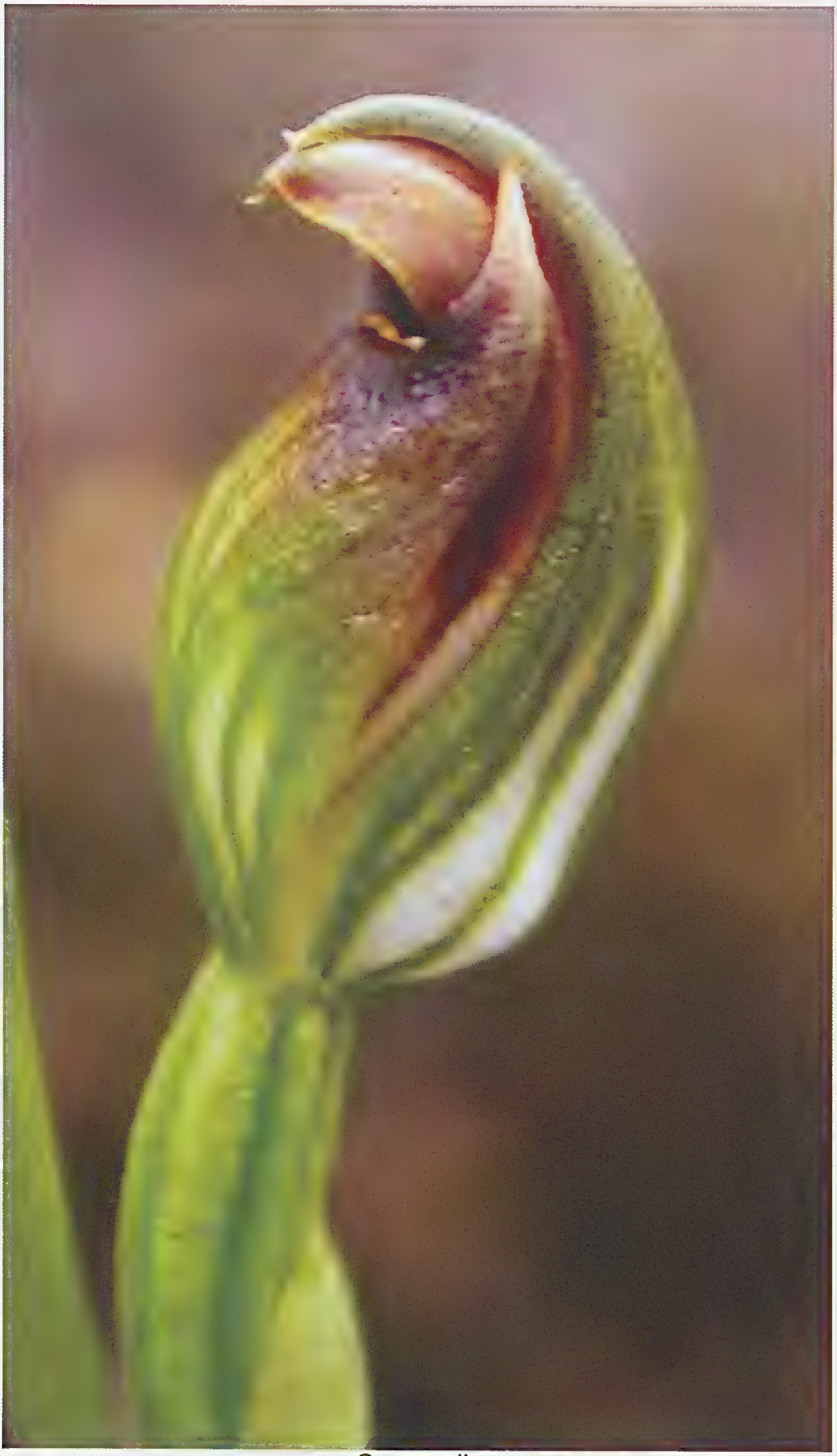
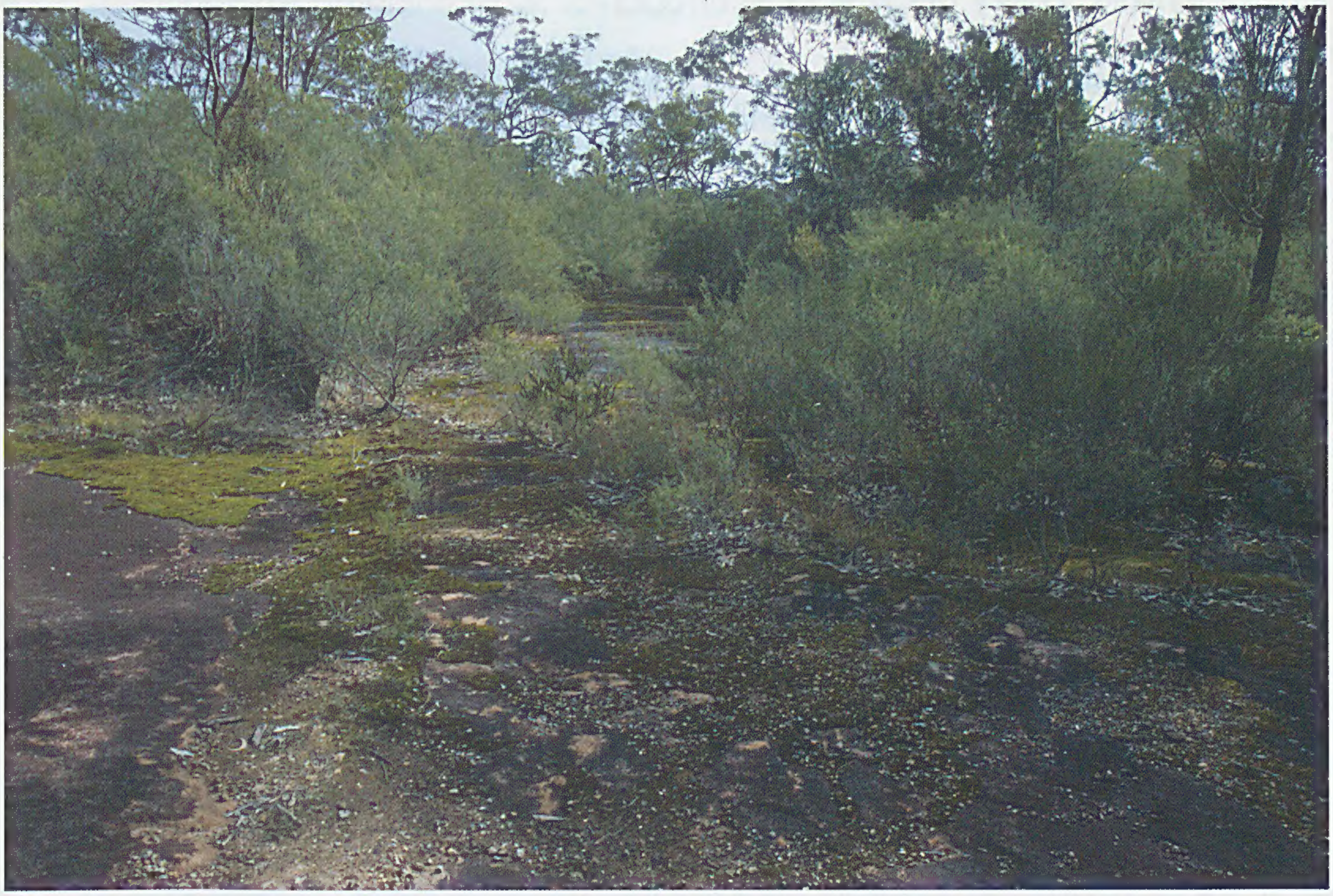
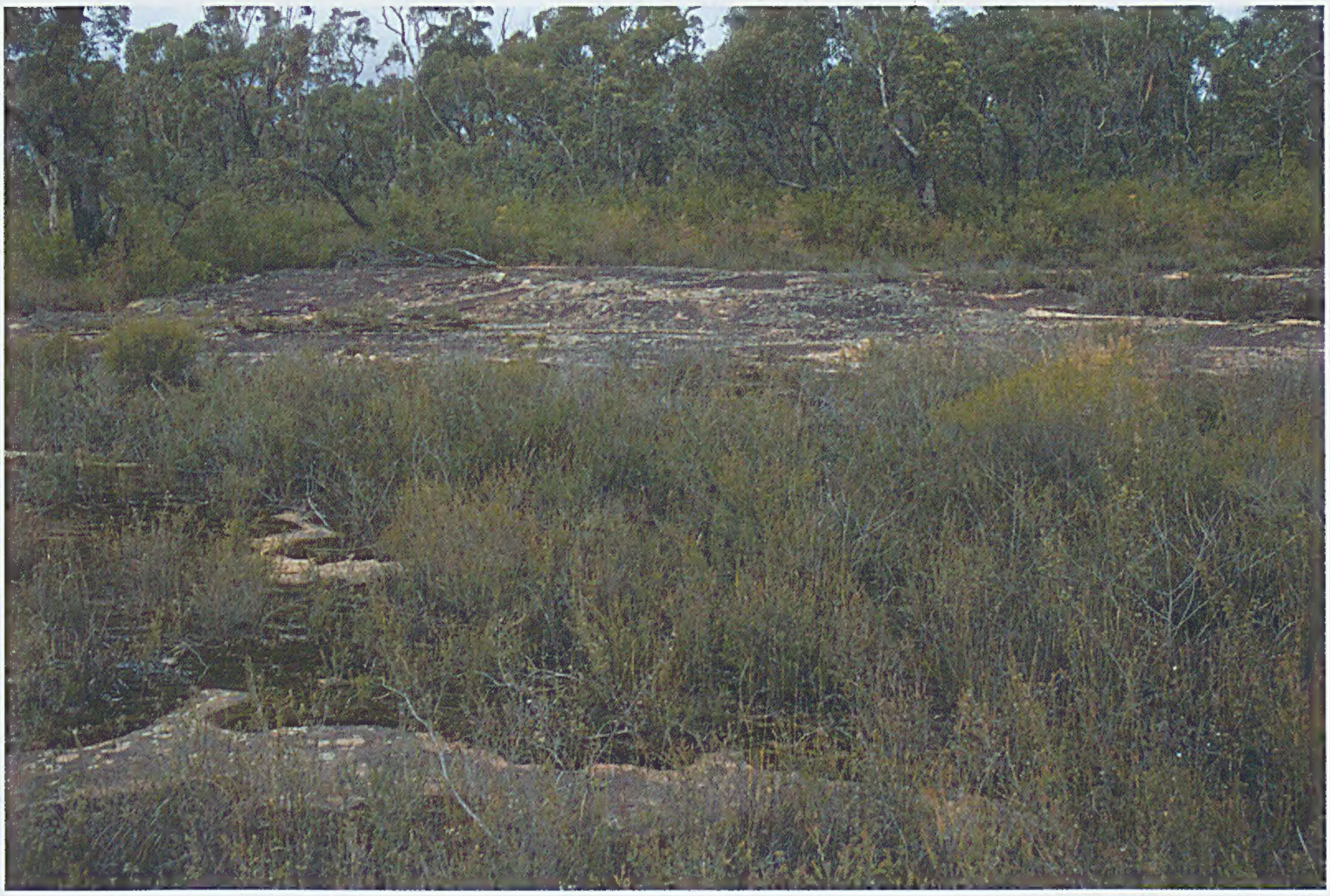


S. vernalis



S. vernalis habitat Flatrock Ck East



S. vernalis habitat Jerrawangla National Park

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- **ANOS Townsville**, 92 Curie St, Wulguru, 4811, (07) 4778-4311. Meetings 8pm, 1st Tue. each month. Townsville Orchid Society Hall, Pioneer Park (opp. Willows Shopping Centre), Thuringowa..
- **Native Orchid Society of Toowoomba**, P.O. Box 2141,Toowoomba 4350. Meetings 7.30pm, 1st Fri. each month. Luthern Church Hall, Cnr. West and Alderly Sts, Toowoomba.

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- **Native Orchid Society of South Australia**, P.O. Box 565, Unley 5061, (08) 8356-7356. Meetings 8pm, 4th Tue. each month. St. Matthews Hall, 67 Bridge St., Kensington.

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- **ANOS Melbourne Suburbs Group**, PO Box 169, Bayswater Vic. 3153, 0419720355. Meetings held on the 4th Wednesday of the month at 7.30pm at Montrose Primary School, Leith Rd., Montrose 3765 (Melways 52 D7)

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- **ANOS Western Australia**, 27 Maidment Parade Dalyellup WA, 6230, 041 9901 335. Meetings 8pm, 2nd Mon. each month. Wilson Community Hall, Braibrise Rd., Wilson.

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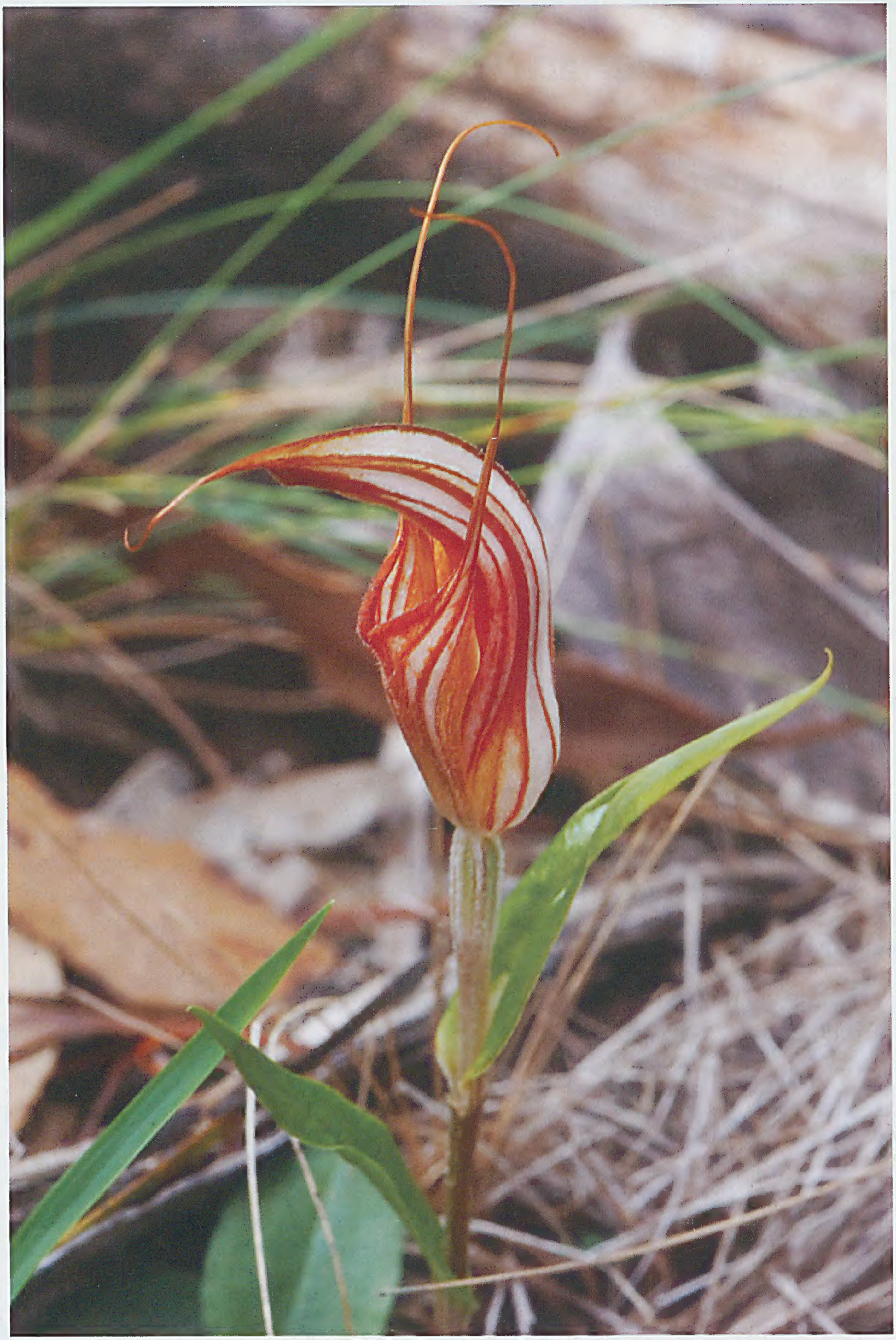

Diplodium coccinum